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TECHNICAL MANUAL

FIELD MAINTENANCE MANUAL
INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL)

FOR

MODULAR FUEL SYSTEM TANK RACK MODULE WITH STAND-ALONE RETAIL CAPABILITY

M107
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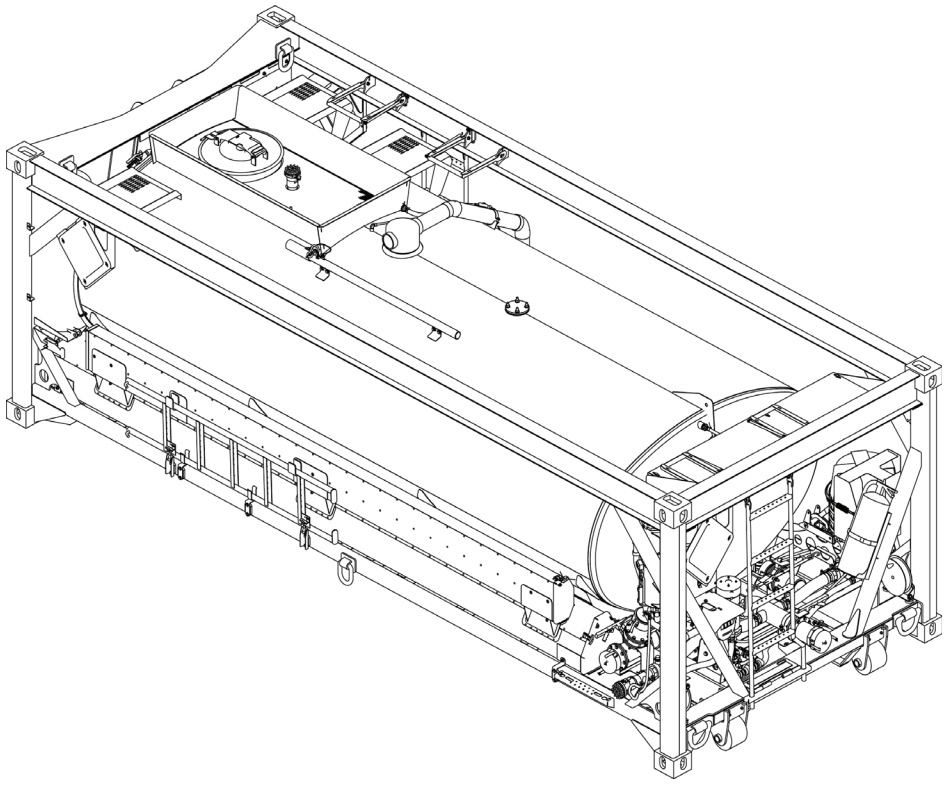

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HEADQUARTERS, DEPARTMENT OF THE ARMY
16 SEPTEMBER 2015

WARNING SUMMARY

This warning summary contains general safety warnings and hazardous materials warnings that must be understood and applied during operation and maintenance of this equipment. Failure to observe these precautions could result in injury or death to personnel. Also included are explanations of safety and hazardous materials icons used with this technical manual.

FOR INFORMATION ON FIRST AID, REFER TO FM 4-25.11.

EXPLANATION OF SAFETY WARNING ICONS

ELECTRICAL - electrical wire to arm with electricity symbol running through human body shows that shock hazard is present.

EYE PROTECTION - person with goggles shows that the material will injure the eyes.

FIRE - flame shows that a material may ignite and cause burns.

FLYING PARTICLES - arrows bouncing off face with face shield show that particles flying through the air will harm face.

HEAD PROTECTION - arrow bouncing off head with helmet shows that low clearance presents a danger.

HEAVY OBJECT - human figure stooping over heavy object shows physical injury potential from improper lifting techniques.

HEAVY PARTS - heavy object on human figure shows that heavy parts present a danger to life or limb.

HOT AREA - hand over object radiating heat shows that part is hot and can burn.

SLICK FLOOR - wavy line on floor with legs prone shows that slick floor presents a danger from falling.

GENERAL SAFETY WARNING DESCRIPTION

WARNING

LIFTING ARM

Know the load limits of your lift before attempting to lift the TRM. Keep personnel at least 6 ft (2 m) away from the TRM being raised. Failure to comply may result in injury or death to personnel.

WARNING

LOW CLEARANCE

Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam. Failure to comply could result in injury to personnel.

WARNING

MANHOLE COVER

To prevent explosion caused by electrostatic charge, ensure all personnel and equipment are grounded before opening manhole cover. Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Eye protection is required when opening manhole cover. Failure to comply may result in injury or death to personnel.

WARNING

SLIPPERY SURFACE

Wet metal surfaces are slippery. Use caution when climbing on tank. Failure to comply may result in injury or death to personnel.

GENERAL SAFETY WARNING DESCRIPTION - CONTINUED

WARNING

UNUSUAL ENVIRONMENT/WEATHER

- When operating the TRM in temperatures of 100ºF (38ºC) or higher, take extra care to minimize the possibility of an explosion and fire.
- Fuels evaporate very quickly. Fuel contact of skin can quickly lower the temperature of exposed skin making the area susceptible to frost bite. Prevent leakage of fuel onto bare skin of personnel.
- When operating the TRM in temperatures down to -25ºF (-31ºC), take extra care to minimize the possibility of frostbite to personnel.
- Failure to comply may result in injury or death to personnel.

EXPLANATION OF HAZARDOUS MATERIALS ICONS

BIOLOGICAL - abstract symbol bug shows that a material may contain bacteria or viruses that present a danger to life or health.

CHEMICAL - drop of liquid on hand shows that the material will cause burns or irritation to human skin or tissue.

CRYOGENIC - hand in block of ice shows that the material is extremely cold and can injure human skin or tissue.

EXPLOSION - rapidly expanding symbol shows that the material may explode if subjected to high temperatures, sources of ignition, or high pressure.

HIGH-PRESSURE FLUID - high-pressure fluid spraying human hand shows that fluid escaping under great pressure can cause injury or death.

RADIOACTIVE - identifies a material that emits radioactive energy and can injure human tissue or organs.

VAPOR - human figure in a cloud shows that material vapors present a danger to life or health.

HAZARDOUS MATERIALS DESCRIPTION

WARNING

CORROSION PREVENTIVE COMPOUND

Corrosion preventive compound is toxic and an irritant to eyes, skin, and respiratory system. Goggles and gloves must be worn when working with corrosion preventive compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury or death to personnel.

WARNING

DIELECTRIC GREASE

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

WARNING

ELECTRIC SHOCK

Ensure all sources of power are disconnected from the TRM before proceeding with maintenance. Failure to comply may result in injury or death to personnel or damage to equipment.

HAZARDOUS MATERIALS DESCRIPTION - CONTINUED

WARNING

FUEL

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.
- Follow fuel operations in ATP 4-43. Ensure grounding connections are made properly before any fueling operations. Stop fueling operations immediately at the first sign of a leak or malfunction.
- Leaking fuel can ignite and cause serious injury to personnel and damage to equipment.
- Discharge static electricity before fueling operations by touching a metal surface away from fuel nozzle. Static electricity may cause fuel to ignite.
- Cellular phones or other electronic devices must not be used within 25 ft (7.6 m) of TRM. Use of cellular phones and other electronic devices during fueling may cause fuel to ignite.
- Do not wear wool, nylon, silk, rayon, or other items having a tendency to generate static electricity. Static electricity may cause fuel to ignite.
- Wear clean cotton clothing with no metal buttons, zippers or fasteners. Remove all contents from pockets. Static electricity from metal objects may cause fuel to ignite.
- Use cotton waste for cleaning purposes; other material may generate static electricity and cause fuel to ignite.
- Failure to comply may result in injury or death to personnel.

WARNING

SEALING COMPOUNDS

Primer and sealing compound are flammable, toxic, and an irritant to eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury or death to personnel.

HAZARDOUS MATERIALS DESCRIPTION - CONTINUED

WARNING

SOLVENT CLEANING COMPOUND

Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles, Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

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Original....16 September 2015

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DEPARTMENT OF THE ARMY
Washington, D.C., 16 September 2015

TECHNICAL MANUAL

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INCLUDING REPAIR PARTS AND SPECIAL TOOLS LIST

(RPSTL)

FOR

MODULAR FUEL SYSTEM TANK RACK MODULE

WITH STAND-ALONE RETAIL CAPABILITY

M107
NSN 4930-01-601-2624
PART NUMBER: 5252578
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HOW TO USE THIS MANUAL

This manual contains certain features to improve the convenience of using this manual and increase the user's efficiency. These features include:

a. **Accessing Information.** This manual contains a Front Cover, Warning Summary, List of Effective Pages, Title Block Page, Table of Contents, Chapters 1 through 5, and an Alphabetical Index. Information is accessed by referring to Table of Contents, located in the front of this manual, or by looking in the Alphabetical Index, located in the back of the manual.

b. **Illustrations.** Various methods are used to locate and repair or replace components. PMCS tables, exploded views, and cut-away diagrams make the information in the manual easier to understand and follow.

c. **Using This Manual.** When using this manual, read and understand the entire maintenance action before performing the task. Also, read and understand all warnings, cautions and notes as well as general safety precautions that apply to the task to be performed. The warning summary will inform personnel of hazards associated with the equipment to be maintained or repaired. However, the summary is not all-inclusive and personnel should be aware at all times of hazardous conditions that may arise.

Prior to starting the procedures in this manual, read the initial setup requirements located directly above each procedure. The information is given to ensure all materials, expendables, tools and any other equipment necessary are readily available for use. The initial setup will be accomplished prior to starting the actual steps of each operator or maintenance procedure.

Procedures in this manual are intended to be performed by Military Occupation Specialty (MOS) 91J, Quartermaster and Chemical Equipment Repairer.

LOCATING MAJOR COMPONENTS

Obtain the manual for the system to be operated, maintained or repaired. Turn to the Table of Contents located in the front of this manual. Find Chapter 1, General Information, Equipment Description and Theory of Operation. Under the chapter title you will find the work package titled Equipment Description and Data which contains Location and Description of Major Components. Turn to the work package indicated. The indicated work package will provide an illustration and brief description of each major component and its location.

Equipment Description and Data, which contains Location and Description of Major Components, can also be found under letter E in the Alphabetical Index. The work package is found on the right side of the title where the Equipment Description and Data is located. Turn to the work package indicated to find the description and location of each component.

TROUBLESHOOTING PROCEDURES

To locate a particular troubleshooting procedure, open the manual to the Table of Contents located in the front of this manual. Locate Chapter 2 Troubleshooting Procedures. Under this section, find a work package titled Master Malfunction/Symptom Index. Turn to the work package indicated, which lists all troubleshooting procedures. Review the list until you find the appropriate work package for the problem you intend to solve. To the right of the procedure will be a work package number. Turn to the work package indicated and follow the steps to complete the troubleshooting procedure. Each procedure lists the symptom, steps, condition/indications, decisions, malfunctions, and the action for the problem at hand. The action will indicate which maintenance procedure to follow to alleviate the symptom. Follow the procedures indicated to complete the task. At the top of the task, you will find a section entitled INITIAL SETUP. There are five basic headings listed under INITIAL SETUP.

a. **Tools and Special Tools.** Lists all tools (standard or special) required to perform the task. Tools are identified with an item number and table number from the applicable work package, located in Chapter 5, Supporting Information.

TROUBLESHOOTING PROCEDURES - CONTINUED

b. **Materials/Parts.** Lists all mandatory replacement parts, expendable and durables necessary to perform the task. Expendable and durables are identified with an item number from the applicable work package located in Chapter 5, Supporting Information. Parts are identified with an item number from the applicable work package located in Chapter 4, Parts Information.

c. **Personnel Required.** Lists personnel necessary to perform the task when more than one person is required for the task.

d. **References.** Include any other manuals necessary to complete the task. When there are no references listed, all steps necessary to complete the task are contained within this manual. A listing of reference materials is contained in the work package entitled References in Chapter 5, Supporting Information.

e. **Equipment Condition.** Notes the conditions that must exist before starting the task. The equipment condition will also include any prerequisite maintenance tasks to be performed with reference to the work package number or the Technical Manual (TM) number.

MAINTENANCE INSTRUCTIONS

To locate a maintenance procedure, open the manual to the Table of Contents located in the front of this manual. Locate Chapter 3 for Field Maintenance Instructions. Look down the list and find the maintenance procedure to be accomplished. On the right side of the maintenance procedure will be a work package number. Turn to the work package indicated. Before beginning the maintenance task, look through the procedure to familiarize yourself with the entire maintenance procedure. At the top of the task you will have a section called INITIAL SETUP. There are five basic headings listed under INITIAL SETUP.

a. **Tools and Special Tools.** Lists all tools (standard or special) required to perform the task. Tools are identified with an item number and table number from the applicable work package, located in Chapter 5, Supporting Information.

b. **Materials/Parts.** Lists all mandatory replacement parts, expendable and durables necessary to perform the task. Expendable and durables are identified with an item number from the applicable work package located in Chapter 5, Supporting Information. Parts are identified with an item number from the applicable work package located in Chapter 4, Parts Information

c. **Personnel Required.** Lists all personnel necessary to perform the task.

d. **References.** Include any other manuals necessary to complete the task. When there are no references listed, all steps necessary to complete the task are contained within this manual. A listing of reference materials is contained in the work package entitled References in Chapter 5, Supporting Information.

e. **Equipment Condition.** Notes the conditions that must exist before starting the task. The equipment condition will also include any prerequisite maintenance tasks to be performed with reference to the work package number or the TM number.

REPAIR PARTS AND SPECIAL TOOLS LIST

Refer to Chapter 4, Parts Information when requisitioning parts, special tools and equipment.

Identify the mandatory repair parts required to perform the task listed at the top of the work package in the INITIAL SETUP. Using the reference provided, refer to the appropriate work package in Chapter 4, Parts Information. Turn to the figure and locate the item number listed. Verify that the item is correct.

TORQUE VALUES

For torque not specified in an individual work package, refer to the Torque Limits Work Package located in Chapter 3 of this manual.

CHAPTER 1

GENERAL INFORMATION, EQUIPMENT DESCRIPTION, AND THEORY OF OPERATION

FIELD MAINTENANCE

GENERAL INFORMATION

SCOPE

This manual contains descriptions and instructions for the Modular Fuel System (MFS) Tank Rack Module, referred to as Tank Rack Module (TRM).

Type of Manual: Field Maintenance and Repair Parts.

Model Number and Equipment Name: M107, MFS TRM with Stand-Alone Retail Capability (S-ARC).

Purpose of Equipment: The TRM is designed to be used by forward area petroleum personnel to receive, store, and dispense fuel.

Procedures in this manual are intended to be performed by Military Occupation Specialty (MOS) 91J Quartermaster and Chemical Equipment Repairer.

MAINTENANCE FORMS, RECORDS AND REPORTS

Department of the Army forms and procedures used for equipment maintenance will be those prescribed by DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

REPORTING EQUIPMENT IMPROVEMENT RECOMMENDATIONS (EIR)

If your TRM needs improvement, let us know. Send us an EIR. You, the user, are the only one who can tell us what you do not like about your equipment. Let us know why you do not like the design or performance.

All non-Aviation/Missile EIRs and Product Quality Deficiency Reports (PQDRs) must be submitted through the Product Data Reporting and Evaluation Program (PDREP) Web site. The PDREP site is: https://www.pdrep.csd.disa.mil/.

If you do not have Internet access, you may submit your information using Standard Form (SF) 368 (PQDR). You can send your SF 368 using e-mail, regular mail, or fax using the addresses/fax numbers specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual. We will send you a reply.

HAND RECEIPT (HR) MANUALS

There is no HR manual for the TRM.

CORROSION PREVENTION AND CONTROL (CPC)

Corrosion prevention and control of Army materiel is a continuing concern. It is important that any corrosion problems with this item be reported so that the problem can be corrected and improvements can be made to prevent the problem in future items. The term “corrosion” means the deterioration of a material or its properties due to a reaction of that material with its chemical environment. An example is the rusting of iron. Corrosion damage in metals can be seen, depending on the metal, as tarnishing, pitting, fogging, surface residue, and/or cracking. Plastics, composites, and rubbers can also degrade (also considered to be corrosion based on the above definition of corrosion). Degradation is caused by thermal (heat), oxidation (oxygen), solvation (solvents), or photolytic (light, typically ultraviolet) processes. The most common exposures are excessive heat or light. Damage from these processes will appear as cracking, softening, swelling, and/or breaking. The US Army has defined the following nine (9) forms of corrosion used to evaluate the deterioration of metals. These shall be used when evaluating and documenting corrosion.

UNIFORM (or general attack): Affects a large area of exposed metal surface, like rust on steel or tarnish on silver. It gradually reduces the thickness of the metal until it fails.

CREVICE: Occurs in crevices created by rubber seals, gaskets, bolt heads, lap joints, dirt or other surface deposits. It will develop anywhere moisture or other corrosive agents are trapped and unable to drain or evaporate.

CORROSION PREVENTION AND CONTROL (CPC) - CONTINUED

SELECTIVE LEACHING: One element, usually the anodic element of an alloy, corrodes away, leaving the cathodic element. This can create holes in metal.

INTERGRANULAR: Metal deterioration caused by corrosion on the bonds between or across the grain boundaries of the metal. The metal will appear to be peeling off in sheets, flaking, or being pushed apart by layers. A particular type of intergranular corrosion is exfoliation.

PITTING: This can result from conditions similar to those for crevice corrosion. Pits can develop on various materials due to their composition. Rifle boxes are big victims of pitting.

EROSION: Results when a moving fluid (liquid or gas) flows across a metal surface, particularly when solid particles are present in the fluid. Corrosion actually occurs on the surface of the metal, but the moving fluid washes away the corrosion and exposes a new metal surface, which also corrodes.

FRETTING: Occurs as a result of small, repetitive movements (e.g., vibration) between two surfaces in contact with each other. It is usually identified by a black powder corrosion product or pits on the surface.

GALVANIC: Occurs when two different types of metal come in contact with each other, like steel bolts on aluminum, for example. This is a common problem on aircraft because of their mix of metals.

STRESS: Term used to describe corrosion cracking and corrosion fatigue.

Where an item is not ready/available due to one of these forms of corrosion, it shall be recorded as a corrosion failure in the inspection record and the appropriate code (170) for corrosion shall be used when requesting/performing maintenance.

SF Form 368, Product Quality Deficiency Report should be submitted to the address specified in DA PAM 750-8, The Army Maintenance Management System (TAMMS) Users Manual.

DESTRUCTION OF ARMY MATERIEL TO PREVENT ENEMY USE

The procedures for destruction of Army materiel to prevent enemy use are contained in TM 750-244-6, Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use.

PREPARATION FOR STORAGE OR SHIPMENT

Preparation for Storage or Shipment procedures can be found in TM 10-4930-370-10.

LIST OF ABBREVIATIONS/ACRONYMS

Abbreviation/Acronym	Name
AL	Adapter Length
AR	Army Regulation
AT	Applied Torque
ATP	Army Techniques Publication
BCT	Brigade Combat Team
BT	Bottle
BX	Box
C	Celsius
CAGEC	Commercial and Government Entity Code
CCW	Counterclockwise
cm	Centimeter
CN	Can
CPC	Corrosion Prevention and Control
CTA	Common Table of Allowances

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

Abbreviation/Acronym	Name
Cu	Cubic
CW	Clockwise
DA	Department of the Army
DIA	Diameter
DT	Desired Torque
EA	Each
EDIL	Expendable and Durable Items List
EIR	Equipment Improvement Recommendations
EMI	Electromagnetic Interference
F	Fahrenheit
FGC	Functional Group Code
FIG	Figure
FM	Field Manual
ft	Foot
GAA	Grease, Automotive and Artillery
gal.	Gallon
HEMTT	Heavy Expanded Mobility Tactical Truck
HEMTT-LHS	Heavy Expanded Mobility Tactical Truck-Load Handling System
HR	Hand Receipt
IAW	In Accordance With
ID	Identification
in.	Inch
in-lb	Inch Pound
ISO	International Organization for Standardization
IUID	Item Unique Identification
kg	Kilogram
L	Liter
lb	Pound
lb-ft	Pound-Foot
LT	Length of Torque Wrench
m	Meter
MAC	Maintenance Allocation Chart
MFS	Modular Fuel System
mm	Millimeter
MOS	Military Occupation Specialty
MTOE	Modified Table of Organization and Equipment
NATO	North Atlantic Treaty Organization
NBC	Nuclear, Biological, and Chemical

LIST OF ABBREVIATIONS/ACRONYMS – CONTINUED

Abbreviation/Acronym	Name
NIIN	National Item Identification Number
Nm	Newton Meter
NO	Number
NSN	National Stock Number
PAM	Pamphlet
PDREP	Product Data Reporting and Evaluation Program
PG	Package
PQDR	Product Quality Deficiency Report
PLS	Palletized Load System
PMCS	Preventive Maintenance Checks and Services
P/N	Part Number
PR	Pair
QT	Quart
QTY	Quantity
ROM	Refuel on the Move
RPSTL	Repair Parts and Special Tools List
S-ARC	Stand-Alone Retail Capability
SATS	Standard Automotive Tool Set
SF	Standard Form
SMR	Source, Maintenance, and Recoverability
SOP	Standard Operating Procedures
Sq	Square
TACOM	Tank Automotive Command
TAMMS	The Army Maintenance Management System
TIL	Tool Identification List
TM	Technical Manual
TMDE	Test, Measurement, and Diagnostic Equipment
TRM	Tank Rack Module
TU	Tube
TULSA	TACOM Unique Logistics Support Applications
U/I	Unit of Issue
UOC	Usable On Code
VDC	Volts Direct Current
WP	Work Package

QUALITY OF MATERIAL

Material used for replacement, repair or modification must meet the requirements of this manual.

SAFETY, CARE, AND HANDLING

TRM may be used to store various fuels. It must be assumed that residual fuel and fuel vapors are present in TRM at all times, even after draining or purging. Therefore, equipment must always be handled with the same degree of caution as if it contained fuel. One or more fully charged fire extinguishers must be present at all times.

A static electric charge is always present in all fuels. Any physical movement of fuel will increase static charge, for example when fuel is being pumped, stirred, shaken or splashed. If charge is allowed to build sufficiently, it will discharge, causing a spark that may ignite fuel vapors. Buildup of a static electric charge is controlled by bonding and grounding of TRM. A ground rod and grounding cable are provided with TRM and must be inspected, maintained, and used consistently and conscientiously to prevent fuel ignition due to electrostatic discharge. The system should always be grounded except when being transported.

Fuels may contain toxic additives. Personal protective equipment should always be worn when working with TRM.

Fuels are dangerous under all conditions. Always observe fuel handling safety precautions and follow fuel handling procedures in ATP 4-43.

ITEM UNIQUE IDENTIFICATION

There is an Item Unique Identification (IUID) marking on the data plate on the right rear of the TRM. The marking must be scanned during performance of procedures to remove and replace the items marked or when turning in items or receiving them from supply or another unit. For information on location of the data plate with the IUID marking, refer to the TM 10-4930-370-10.

SUPPORTING INFORMATION FOR REPAIR PARTS, SPECIAL TOOLS, TMDE, AND SUPPORT EQUIPMENT

For authorized common tools and equipment, refer to *Modified Table of Organization and Equipment (MTOE)*, CTA 50-970, *Expendable/Durable Items (Except: Medical, Class V, Repair Parts, and Heraldic Items)*, CTA 50-909, *Field and Garrison Furnishings and Equipment*, CTA 8-100, *Army Medical Department Expendable/Durable Items*, as applicable to your unit.

END OF WORK PACKAGE

FIELD MAINTENANCE

EQUIPMENT DESCRIPTION AND DATA

EQUIPMENT CHARACTERISTICS, CAPABILITIES AND FEATURES

The TRM is used to receive, store, and issue fuel in selected units at division level and below. The initial use of the TRM is to provide mobile fuel storage and issuing capability for the Brigade Combat Team (BCT). The TRM fielded to the BCT can be transported using a variety of configurations of Palletized Load System (PLS) trailers and trucks. Figure 1 illustrates some possible configurations. The TRM can be used to support relocation of forces by providing refuel-on-the-move (ROM) capability. The units requiring the TRM must possess the ability to rapidly change operational locations and provide petroleum products with minimum use of support assets. Each TRM can transport approximately 2,500 gal. (9,464 L) of fuel over all types of terrain. The flexibility of the system allows the fuel capacity to be tailored to the tactical mission requirement.

The PLS and the Heavy Expanded Mobility Tactical Truck (HEMTT) with the Load Handling System (LHS) are each capable of loading the TRM onto themselves or onto a PLS trailer. This self-load/-unload capability eliminates many of the logistical and planning problems associated with current fuel doctrine, such as having to wait while collapsible tanks or bulk tankers are filled.

The TRM provides the ability to rapidly establish fuel storage capability at any location without the use of material handling or construction equipment. A HEMTT-LHS or PLS can recover the TRM, transport it to a new location, and position the system upon arrival. An empty, full, or partially loaded TRM can be readied for transport, uploaded, and moved in a fraction of the time required for a collapsible tank. Operations can continue uninterrupted by replacing empty TRMs with full ones.

The TRM can also be used for line haul of bulk fuel throughout the theater. A PLS or HEMTT-LHS can transport two TRMs – one on the truck and one on the PLS trailer – for a total of up to 5,000 gal. (18,928 L) of bulk petroleum. The increased mobility and capability of the HEMTT-LHS and PLS allow direct delivery of bulk fuel to a brigade area. The truck unloads the full TRM in the required position and loads any empty TRM for transport back to the fuel resupply point. Although it cannot lift the TRM onto or off a PLS trailer, a HEMTT fueler can tow a PLS trailer with the TRM to transport a total of 5,000 gal. (18,928 L).

The use of the HEMTT-LHS as the prime transporter results in increased cross-country mobility. This expanded capability is critical to uninterrupted resupply of fuel to maneuvering forces.

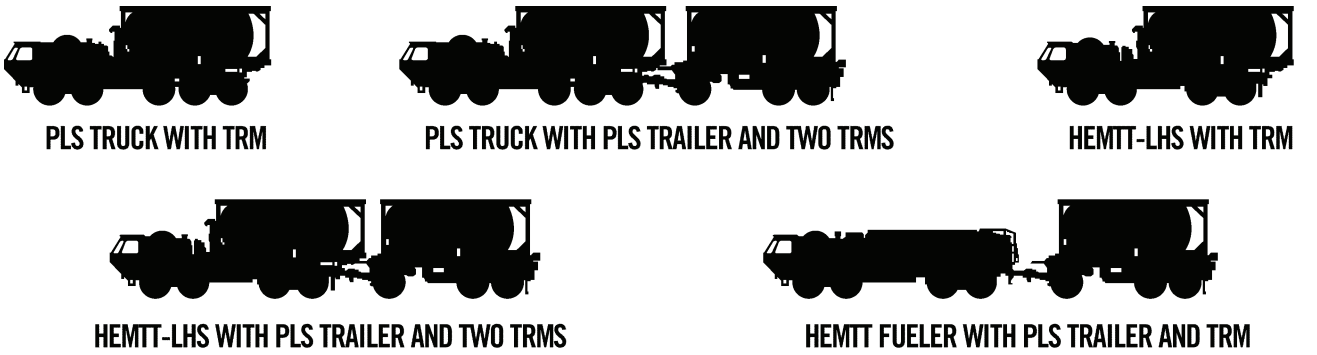

PLS TRUCK WITH TRM
PLS TRUCK WITH PLS TRAILER AND TWO TRMS
HEMTT-LHS WITH TRM
HEMTT-LHS WITH PLS TRAILER AND TWO TRMS
HEMTT FUELER WITH PLS TRAILER AND TRM
504-0002

Figure 1. TRM Transport Configurations.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS

The TRM consists of the following major components:

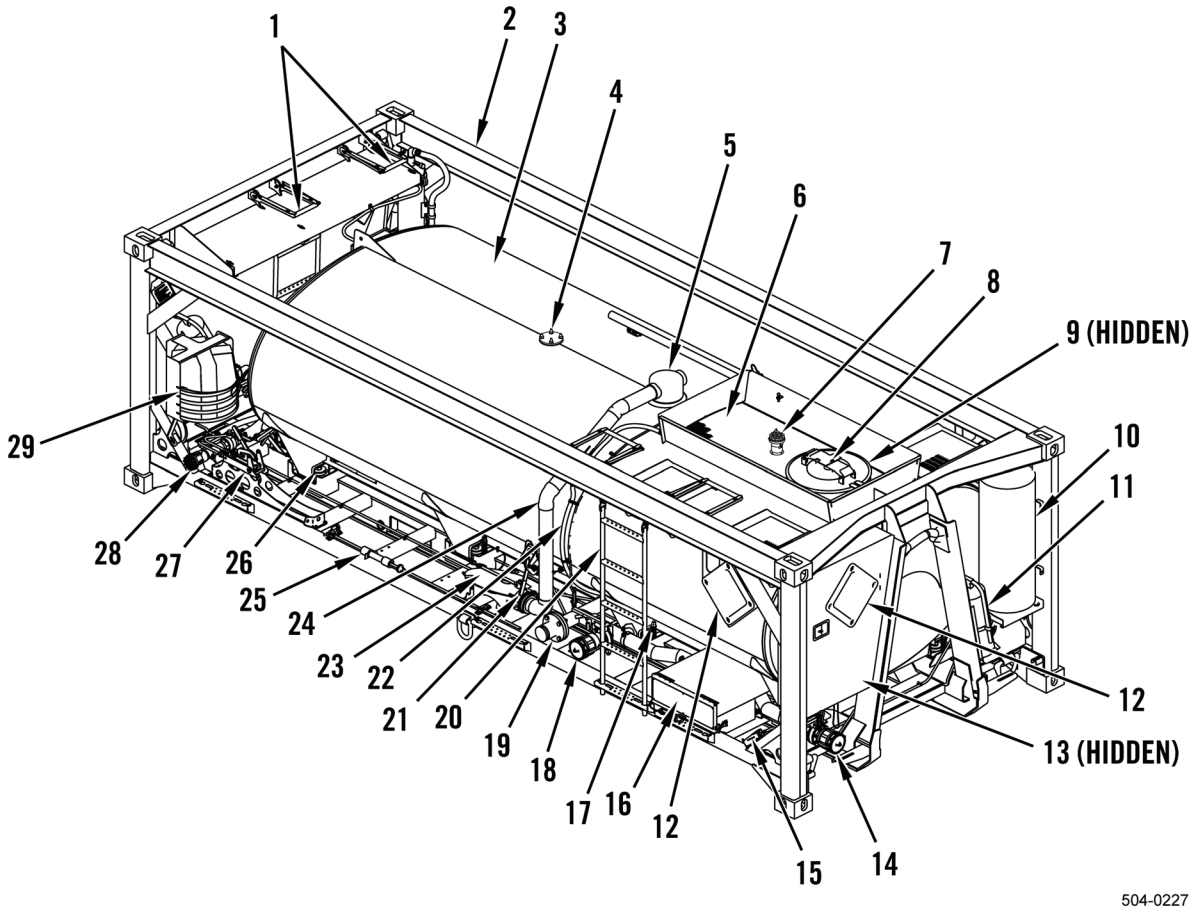


Figure 2. Tank Rack Module - Right Front View.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 1. Tank Rack Module Major Components (Right Front View).

ITEM	DESCRIPTION	QTY
1	ISO Rack Handles	2
2	ISO Rack	1
3	Tank Assembly	1
4	Fuel Tank Cover	1
5	Vent Hood	1
6	Spillbox	1
7	Non-Valved, Unisex Coupling (Top Fill Port F)	1
8	Manhole Cover	1
9	Liquid Level Switch (Inside Manhole)	1
10	Spill Kit	1
11	Fire Extinguisher	1
12	Placard Holder	2
13	Tool Box (Behind Door)	1
14	Discharge Piping (Port G)	1
15	Right Hand Emergency Shutoff Lever	1
16	Cable Tray	1
17	Compression Springs	12
18	Bottom Load Valve Piping Assembly (Port B)	1
19	Internal Valve (Port A) Single Point	1
20	ISO Rack Ladder	1
21	Side Mechanical Operator (V2)	1
22	Spillbox Drain Line	2
23	Transporter Cover	1
24	Vapor Recovery Piping Assembly	1
25	Ground Rod	1
26	Isolation Mounts	16
27	Control Lever Assembly (V1)	1
28	Right Hand Discharge Arm (Port E)	1
29	Drip Pans	4

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

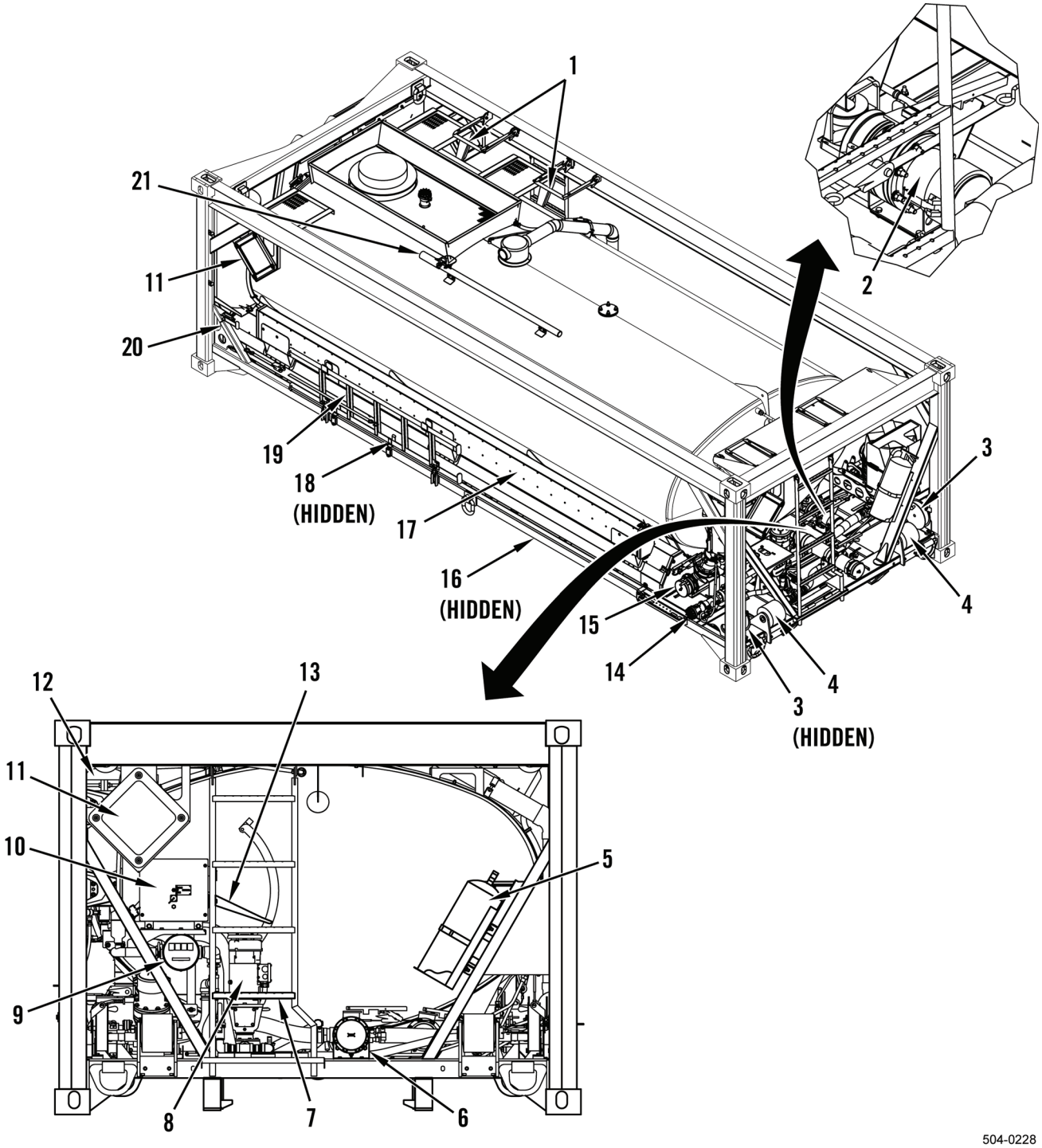


Figure 3. Tank Rack Module - Left Rear View.

LOCATION AND DESCRIPTION OF MAJOR COMPONENTS – CONTINUED

Table 2. Tank Rack Module Major Components (Left Rear View).

ITEM	DESCRIPTION	QTY
1	ISO Rack Handles	2
2	Camlock Adapter and Bracket	1
3	Static Ground Reels	2
4	Rollers	2
5	Fire Extinguisher	1
6	Discharge Piping Assembly (Port C)	1
7	Ladder Assembly	1
8	Fuel Pump Assembly	1
9	Flow Meter	1
10	EMI Control Box	1
11	Placard Holders	2
12	Filter/Separator	1
13	Rear Head Tank Gauge (On Tank)	1
14	Left Hand Discharge Arm (Port D)	1
15	Tee Assembly and Bracket	1
16	V1 Valve (Bottom of Tank)	1
17	Hose Trough Assemblies with Suction Hoses	2
18	V2 Valve (Bottom of Tank)	1
19	Ladder	1
20	Left Hand Emergency Shutoff Lever	1
21	Stowage Tube Assembly (Stows Gauge Stick)	1

EQUIPMENT DATA

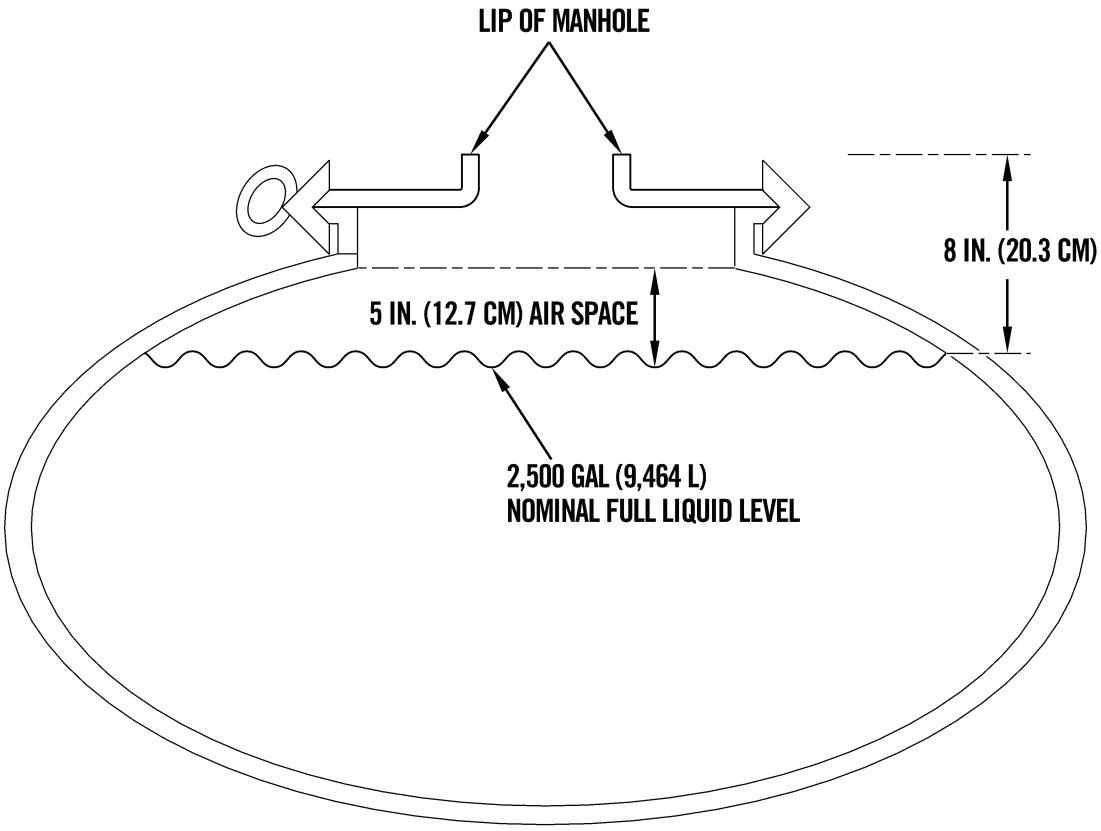
Table 3 provides data pertaining to the operation and mechanical characteristics of components within the TRM.

Table 3. Tank Rack Module Specifications.

ITEM CHARACTERISTIC/ SPECIFICATION	DESCRIPTION
Capacity	2,500 gal. (9,464 L)
Weight	18,000 lb (8,164 kg) (Max Payload)
Empty	8,000 lb (3,629 kg)
With 2,500 gal. of fuel	26,000 lb (11,793 kg)
Height	6 ft (1.83 m)
Length	19 ft 11 in. (6.07 m)
Width	8 ft (2.44 m)

TANK ASSEMBLY FILL CAPACITY

1. When the TRM is on level ground, with a fuel level 8 in. (20.3 cm) from lip of the manhole, the rear head indicator dial should read 2,500 gal. (9,464 L), which is nominal “full” capacity of TRM.
2. 2,500 nominal gal. (9,464 L) leaves 5 percent outage or 5 in. (12.7 cm) of air space, measured vertically from the top of the liquid to the inside of the top of the shell (Figure 4).



504-0030

Figure 4. Tank Assembly Fill.

END OF WORK PACKAGE

FIELD MAINTENANCE

THEORY OF OPERATION

INTRODUCTION

The TRM provides the ability to rapidly establish a fuel distribution and storage capability at any location, regardless of the availability of construction equipment or material handling equipment. A HEMTT-LHS or PLS can recover the TRM, transport it to a new location, and position the system upon arrival. An empty, full, or partially loaded TRM can be readied for transport, uploaded, and moved in a fraction of the time required for a collapsible tank.

The TRM has a 2,500 gallon (9,464 L) capacity. The TRM is capable of top and bottom fill and can dispense all but residual fuel from discharge hoses. The primary method for dispensing fuel is by use of an electric fuel pump. The fuel pump requires an external power source in the form of a 24 Volts Direct Current (VDC) generator or a vehicle. The fuel pump is operated by controls on the TRM or by a 40 ft (12.2 m) remote control switch. Gravity feed is an alternate method for dispensing fuel.

The increased mobility and capability of the HEMTT-LHS and PLS allow direct delivery of bulk fuel to a brigade area. The truck off-loads the full TRM in the required position and loads empty TRMs for transport back to the fuel resupply point. The selected site does not require any preparation prior to deployment. The use of the HEMTT-LHS as the prime transporter results in increased cross-country mobility. This increased capability is critical to uninterrupted resupply to maneuvering forces. Operations can continue uninterrupted by replacing empty TRMs with full ones.

The TRM can also be used for line haul of bulk fuel throughout the theater. A PLS or HEMTT-LHS can transport two TRMs – one on the truck and one on the PLS trailer – for a total of up to 5,000 gal. (18,928 L) of bulk petroleum.

The TRM consists of an enhanced flat rack to provide the required interface with the HEMTT-LHS truck, PLS truck and PLS trailer. The TRM fittings, nozzles and other items are compatible with and are currently in inventory for various other fuel handling systems.

The TRM contains:

a. Storage for other equipment necessary for maintenance and refueling operations
b. Pressure relief valves
c. Load stabilization equipment (baffling, surge plates, etc., to minimize shifting of fuel during transport)
d. 2,500 gal. (9,464 L) storage tank with manhole to enter and exit the inside of the tank
e. Tank gauge viewable by a soldier standing on the ground
f. Flow meter
g. Piping manifold
h. Secure storage for hoses and nozzles
i. Secure storage for cables
j. Electric fuel pump, valves, and manifold for fuel distribution
k. Filtration and water separation system

END OF WORK PACKAGE

CHAPTER 2

FIELD MAINTENANCE TROUBLESHOOTING PROCEDURES

FIELD MAINTENANCE

TROUBLESHOOTING INTRODUCTION

NOTE

Review the associated maintenance procedure(s) and determine the amount of disassembly required to perform a test or inspection before beginning a troubleshooting procedure. Disassemble the Tank Rack Module (TRM) only as far as necessary to test/ inspect/repair the damaged, broken, or faulty component.

INTRODUCTION

1. This chapter provides information for identifying and correcting symptoms that may develop during operation of the TRM.
2. If you are unsure of the location of an item mentioned in troubleshooting, refer to Equipment Description and Data (WP 0002) or for referenced connector end views and their location see Component Location and Connector End View (WP 0006).
3. Perform Preventive Maintenance Checks and Services (PMCS) (WP 0047), operator before PMCS (TM 10-4930-370-10), and operator troubleshooting before beginning any troubleshooting procedure.
4. Read and follow all safety instructions found in the Warning Summary at the front of this manual before starting any troubleshooting procedures.
5. The Troubleshooting Index (WP 0005) lists common symptoms that may occur and refers to the proper Work Package (WP) in the troubleshooting procedures.
6. The Troubleshooting Index (WP 0005) cannot list all symptoms that may occur, nor can troubleshooting list all tests and corrective actions.
7. When troubleshooting, perform the following actions:
   a. Locate the symptom in the Troubleshooting Index (WP 0005) that best describes the symptom.
   b. Turn to the page in the troubleshooting WP which addresses the particular symptom.
   c. Review applicable schematics before troubleshooting the machine.
   d. Read each step before performing the troubleshooting procedure. Most troubleshooting procedures require isolation and testing of multiple components. To achieve this, the troubleshooting logic procedure is broken down as follows:
      (1) **Step.** Each step contains a sequence number and an action to perform to carry out the diagnostic process (e.g., 1. Turn switch to ON position.). The step may have bulleted or sequenced sub-steps in order to perform the actions in the parent step. Each sequenced step may be followed by another step or a Condition/Indication. Step numbering starts at 1, continues sequentially, and does not start over within a WP.
      (2) **Condition/Indication.** Each condition/indication will be in the form of a question, and is based on the action in the preceding steps (Does voltage measure less than 18V?). When a condition/indication is used, a decision will always follow.
      (3) **Decision.** A decision will be “YES” or “NO.” The positive and negative responses will always be paired in the decision. The result from each decision will reference a malfunction, continue troubleshooting to the next step, refer to another troubleshooting procedure, or direct the user to confirm the condition is fixed. If the decision results in a repair, connect all wiring harness connectors, and install components removed/disassembled to perform the troubleshooting procedure.
      (4) **Malfunction.** A malfunction will include a descriptive title that identifies the fault located as a result of previous troubleshooting steps. Malfunctions include a sequence of action steps.

INTRODUCTION – CONTINUED

(5) **Action.** Actions include steps to repair a fault that has been isolated as a result of troubleshooting. Action steps start with lowercase letters (a, b, c) for each malfunction and continue sequentially until all corrective actions have been completed and the fault is repaired.

END OF WORK PACKAGE

FIELD MAINTENANCE

FIELD TROUBLESHOOTING INDEX

MALFUNCTION/SYMPTOM	TROUBLESHOOTING PROCEDURE WP
CONNECTION AND LEAK MALFUNCTIONS	
Fuel Leakage Evident	WP 0007
Fuel Leaks During Transport	WP 0008
V1 Valve Leaks Fuel at Gasket	WP 0009
V2 Valve Leaks Fuel at Gasket	WP 0010
Precheck Ball Valve (V6) Leaks Fuel	WP 0011
Camlock Adapter Leaks Fuel or Will Not Connect with Other Components	WP 0012
Bottom Load Valve Piping Assembly Leaks Fuel	WP 0013
Fuel Leaks from Bottom Load Inlet Piping Assembly	WP 0014
Inlet Piping Butterfly Valve Leaks Fuel	WP 0015
Quick-Disconnect Coupling Half Leaks Fuel	WP 0016
Discharge Piping Assembly Leaks Fuel at Couplings	WP 0017
Discharge Piping Assembly Leaks Fuel at 1 in. (2.54 cm) or 2 in. (5.08 cm) Discharge Hose	WP 0018
Butterfly Valve Leaks Fuel at Discharge Piping Assembly Connection	WP 0019
Discharge Arm Assembly Leaks Fuel	WP 0020
Discharge or Suction Hose Leaks Fuel	WP 0021
Tee Assembly Leaks Fuel or Will Not Connect With Other Components	WP 0022
NATO Adapter Leaks Fuel	WP 0023
Fuel Leaks From Flow Meter or Register Does Not Read Correctly	WP 0024
Non-Valved, Unisex Coupling Assembly Leaks Fuel or Will Not Connect with Other Components	WP 0025
Valved, Unisex Coupling Assembly Leaks Fuel or Will Not Connect with Other Components	WP 0026
Nozzle Assembly Leaks Fuel or Will Not Connect with Other Components	WP 0027
Fuel Leaks from Fuel Pump Assembly Inlet or Return Hoses	WP 0028
Fuel Leaks from Fuel Pump Assembly	WP 0029
Filter/Separator Leaks Fuel	WP 0030
FUEL PUMP MALFUNCTIONS	
Fuel Pump Assembly Motor Runs, but No Fuel Flow	WP 0031
Fuel Pump Assembly Does Not Run When Using On/Off EMI Control Box Switch	WP 0032
Fuel Pump Assembly Motor Stalls When Nozzle Is Closed	WP 0033
COMPONENT MALFUNCTIONS	
Fuel Does Not Flow into Tank	WP 0034
Static Spark Noted at Fuel Dispensing Nozzle	WP 0035
V2 Valve Will Not Automatically Open or Close	WP 0036
Low Flow Rate	WP 0037
Tank Will Not Fill or Stops Filling Before Reaching 2,500 Gallon Capacity	WP 0038
Remote Control Switch Does Not Function Correctly	WP 0039

MALFUNCTION/SYMPTOM **TROUBLESHOOTING PROCEDURE WP**

V1 Valve Will Not Manually Open . . . . . WP 0040
V2 Valve Will Not Manually Open . . . . . WP 0041
Vent Valve Does Not Open When V2 Valve Is Opened . . . . . WP 0042
Port B VB1 or Port C VB2 Vacuum Breaker Leaks Fuel . . . . . WP 0043
Filter/Separator Differential Pressure Gauge Indicator Is in Red Area . . . . . WP 0044

END OF WORK PACKAGE

FIELD MAINTENANCE

COMPONENT LOCATION/CONNECTOR END VIEW

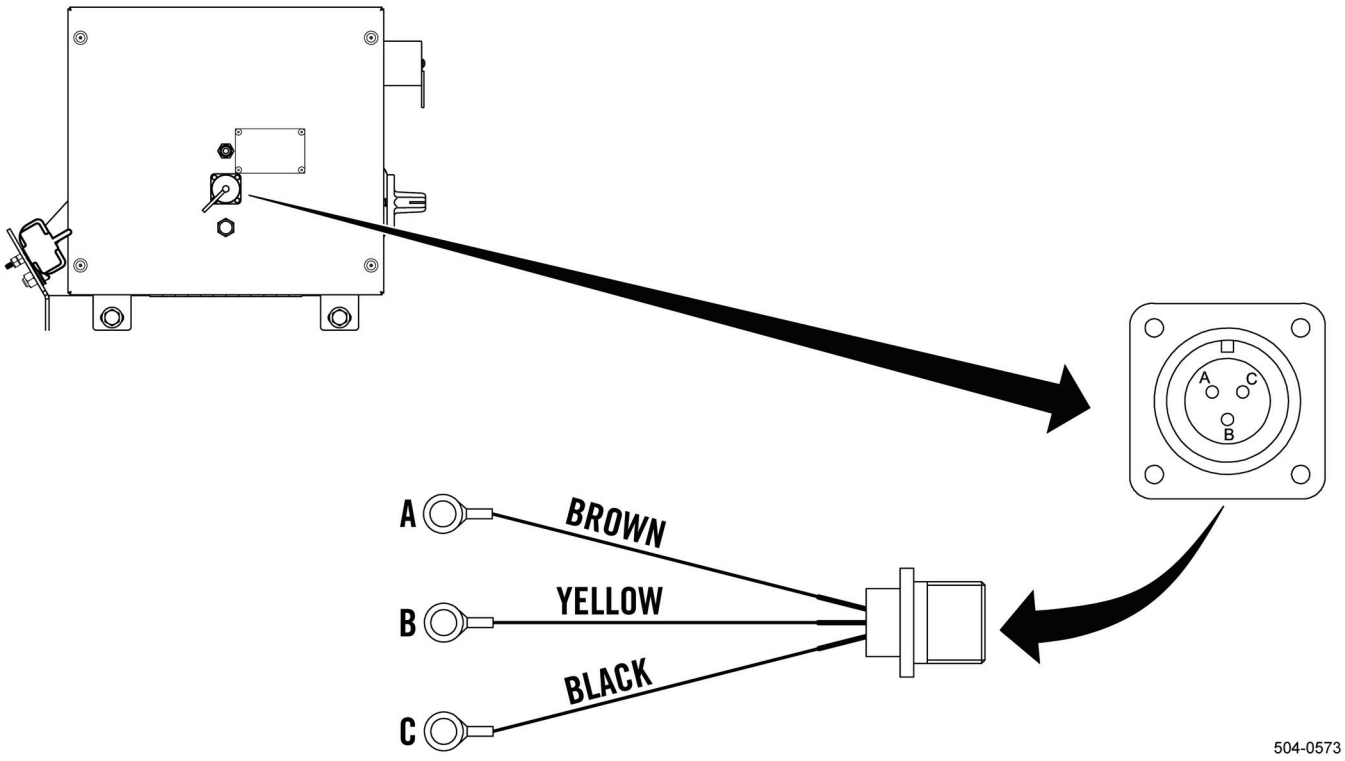


Figure 1. EMI Control Box Receptacle.

NOTE

Use Figure 1 and Table 1 with FO-1 when identifying connectors and circuits.

Table 1. EMI Control Box Receptacle.

Socket Letter	From	To	Circuit Function
A	TOGGLE SWITCH	CABLE A	28 VDC FROM SWITCH
B	DRAIN	CABLE DRAIN	EMI DRAIN
C	TOGGLE SWITCH	CABLE C	28 VDC TO SWITCH

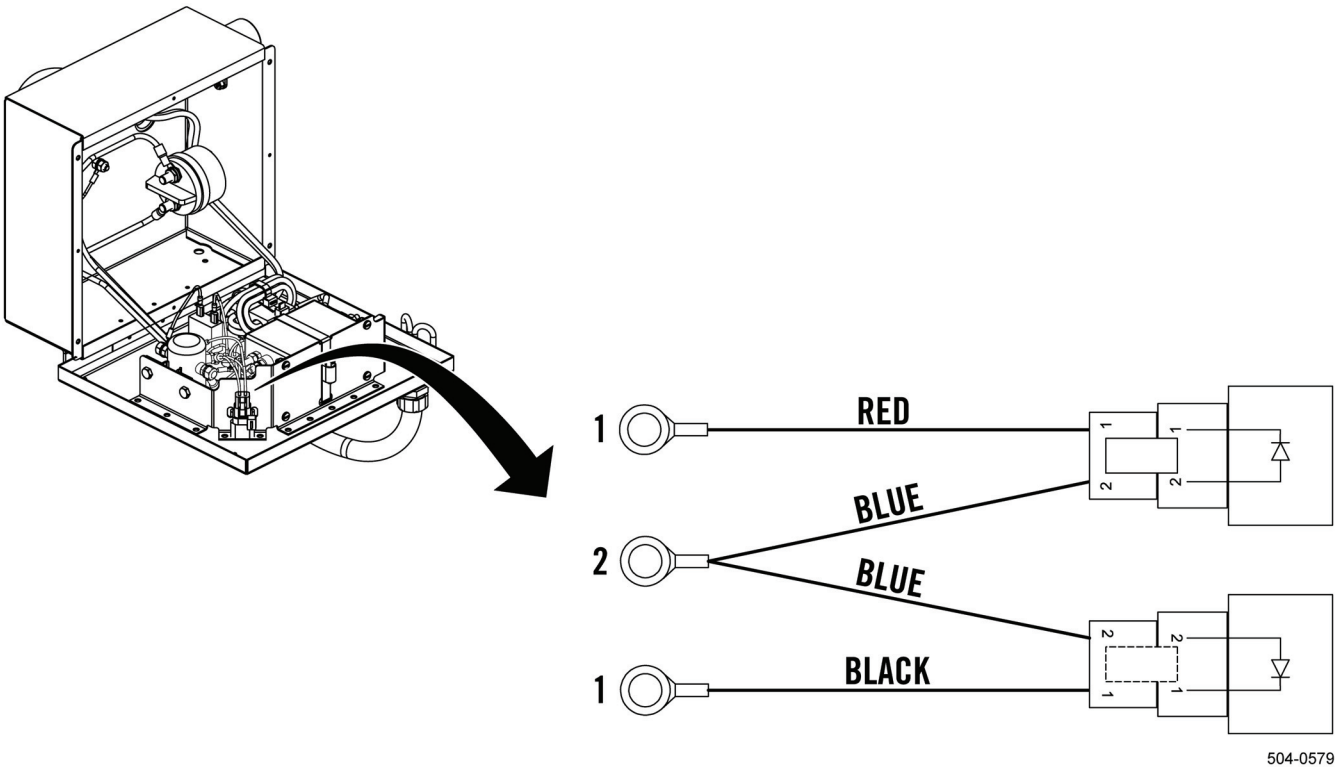


Figure 2. EMI Control Box Diode Assembly.

NOTE

Use Figure 2 and Table 2 with FO-1 when identifying connectors and circuits.

Table 2. EMI Control Box Diode Assembly.

Pin/Socket Number	From	To	Circuit Function
1 (Red)	1 (Red)	2 (Blue)	RELAY (+) TO DIODE (NO CURRENT FLOW)
1 (Black)	1 (Black)	2 (Blue)	EMI FILTER (–) TO DIODE (NO CURRENT FLOW)
2 (Blue)	2 (Blue)	1 (Black and Red)	RELAY (–) TO EMI (–) AND RELAY (+)

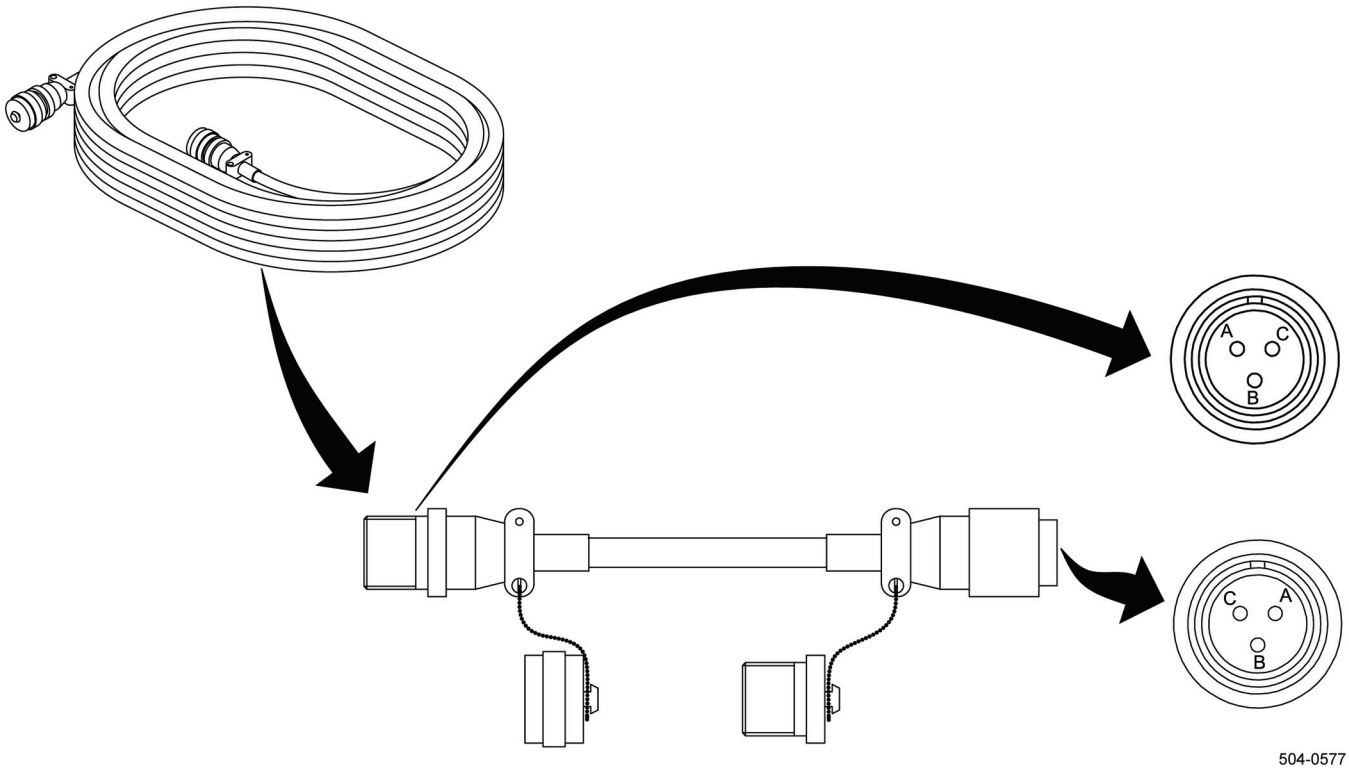


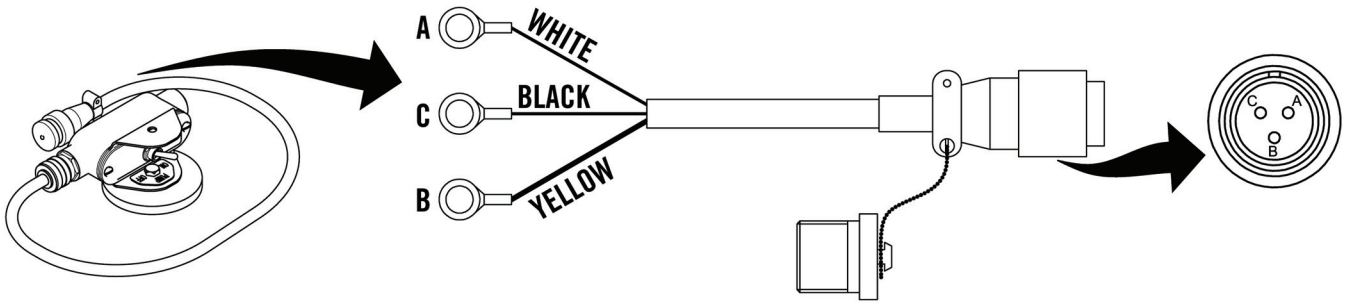
Figure 3. 40 ft (12.2 m) Remote Control Cable.

NOTE

Use Figure 3 and Table 3 with FO-1 when identifying connectors and circuits.

Table 3. 40 ft (12.2 m) Remote Control Cable.

Pin/Socket Letter	From	To	Circuit Function
A	RECEPTACLE A	REMOTE A	28 VDC TO REMOTE
B	RECEPTACLE B	REMOTE B	EMI DRAIN
C	RECEPTACLE C	REMOTE C	28 VDC FROM REMOTE



504-0578

Figure 4. Remote Control Switch Cable.

NOTE

Use Figure 4 and Table 4 with FO-1 when identifying connectors and circuits.

Table 4. Remote Control Switch Cable.

Pin Letter	From	To	Circuit Function
A	CABLE A	REMOTE A	28 VDC TO REMOTE
B	CABLE B	REMOTE B	EMI DRAIN
C	CABLE C	REMOTE C	28 VDC TO CABLE

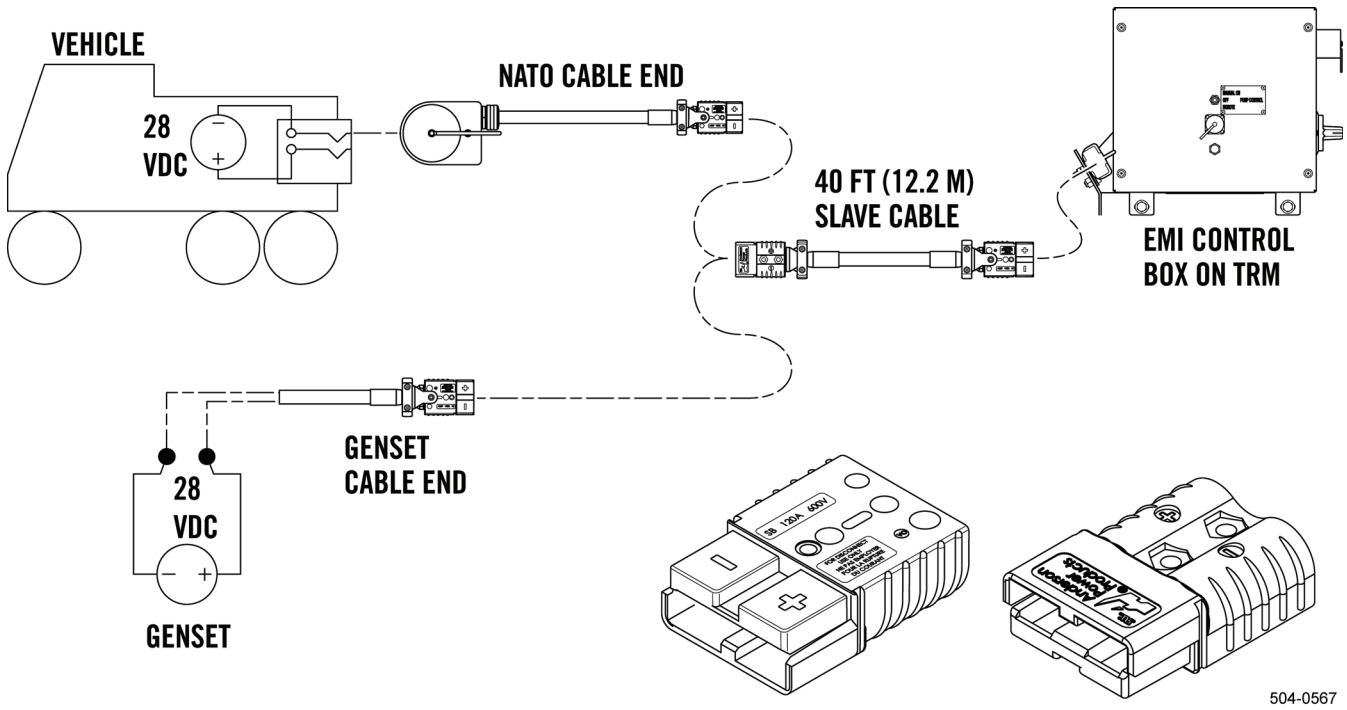


Figure 5. NATO, Genset, and Slave Cables.

NOTE

Use Figure 5 and Table 5 with FO-1 when identifying connectors and circuits.

Table 5. NATO, Genset, and Slave Cables.

Pin/Socket	From	To	Circuit Function
Positive (+)	Power source	EMI control box	24 VDC SUPPLY TO EMI CONTROL BOX
Negative (-)	Power source	EMI control box	24 VDC SUPPLY TO EMI CONTROL BOX

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL LEAKAGE EVIDENT
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

FUEL LEAKAGE EVIDENT

SYMPTOM

Fuel leakage evident.

MALFUNCTION

Fuel leakage.

CORRECTIVE ACTION

Repair or replace damaged equipment.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL LEAKS DURING TRANSPORT
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0081

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

FUEL LEAKS DURING TRANSPORT

SYMPTOM

Fuel leakage during transport.

MALFUNCTION

Deteriorated tank vent gasket.

CORRECTIVE ACTION

Replace tank vent gasket (WP 0081).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V1 VALVE LEAKS FUEL AT GASKET TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

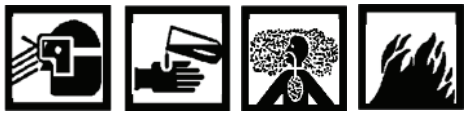
References

WP 0101

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

V1 VALVE LEAKS FUEL AT GASKET

SYMPTOM

V1 valve leaks fuel at gasket.

MALFUNCTION

Defective V1 valve gasket.

CORRECTIVE ACTION

Replace defective V1 valve gasket (WP 0101).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V2 VALVE LEAKS FUEL AT GASKET
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0100

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

V2 VALVE LEAKS FUEL AT GASKET

SYMPTOM

V2 valve leaks fuel at gasket.

MALFUNCTION

Defective V2 valve gasket.

CORRECTIVE ACTION

Replace defective V2 valve gasket (WP 0100).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

PRECHECK BALL VALVE (V6) LEAKS FUEL
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0095

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

PRECHECK BALL VALVE (V6) LEAKS FUEL

SYMPTOM

Precheck ball valve (V6) leaks fuel.

MALFUNCTION

Defective precheck ball valve.

CORRECTIVE ACTION

Replace precheck ball valve (WP 0095).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CAMLOCK ADAPTER LEAKS FUEL OR WILL NOT CONNECT WITH OTHER COMPONENTS TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

References

WP 0115

Equipment Condition

TRM set on level ground

WARNING

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TROUBLESHOOTING PROCEDURE

CAMLOCK ADAPTER LEAKS FUEL

SYMPTOM

Camlock adapter leaks fuel.

MALFUNCTION

Camlock adapter connectors are improperly fastened.

CORRECTIVE ACTION

1. Fasten camlock adapter properly.
2. Repair or replace damaged or defective camlock adapter connectors (WP 0115).

CAMLOCK ADAPTER WILL NOT CONNECT WITH OTHER COMPONENTS

SYMPTOM

Camlock adapter will not connect with other components.

MALFUNCTION

Camlock adapter is damaged or defective.

CORRECTIVE ACTION

Repair or replace damaged equipment (WP 0115).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

BOTTOM LOAD VALVE PIPING ASSEMBLY LEAKS FUEL TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

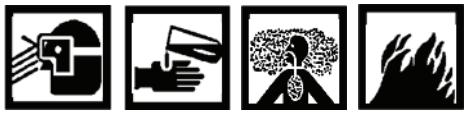
References

WP 0093

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

BOTTOM LOAD VALVE PIPING ASSEMBLY LEAKS FUEL

SYMPTOM

Bottom load valve piping assembly leaks fuel.

MALFUNCTION

Couplings are damaged or defective.

CORRECTIVE ACTION

Replace defective coupling (WP 0093).

MALFUNCTION

Bottom load valve piping assembly is damaged or defective.

CORRECTIVE ACTION

Replace bottom load valve piping (WP 0093).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL LEAKS FROM BOTTOM LOAD INLET PIPING ASSEMBLY

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

References

WP 0093
WP 0096
WP 0097

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

FUEL LEAKS FROM BOTTOM LOAD INLET PIPING ASSEMBLY

SYMPTOM

Fuel leaks from bottom load inlet piping assembly.

MALFUNCTION

Deteriorated coupling gasket.

CORRECTIVE ACTION

Repair bottom load valve piping assembly (WP 0093).

MALFUNCTION

Damaged quick-disconnect coupling half.

CORRECTIVE ACTION

Replace quick-disconnect coupling half (WP 0096).

MALFUNCTION

Damaged inlet piping assembly butterfly valve.

CORRECTIVE ACTION

Repair inlet piping assembly (WP 0097).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

INLET PIPING BUTTERFLY VALVE LEAKS FUEL

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

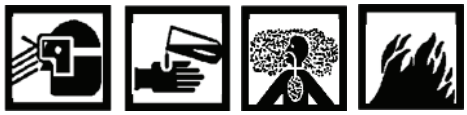
References

WP 0097

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

INLET PIPING BUTTERFLY VALVE LEAKS FUEL

SYMPTOM

Inlet piping butterfly valve leaks fuel.

MALFUNCTION

Damaged butterfly valve gaskets.

CORRECTIVE ACTION

Replace damaged butterfly valve gaskets (WP 0097).

MALFUNCTION

Defective butterfly valve.

CORRECTIVE ACTION

Replace butterfly valve (WP 0097).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

QUICK-DISCONNECT COUPLING HALF LEAKS FUEL TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0096

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

QUICK-DISCONNECT COUPLING HALF LEAKS FUEL

SYMPTOM

Quick-disconnect coupling half leaks fuel.

MALFUNCTION

Deteriorated quick-disconnect coupling gasket.

CORRECTIVE ACTION

Replace quick-disconnect coupling gasket (WP 0096).

MALFUNCTION

Defective quick-disconnect coupling half.

CORRECTIVE ACTION

Replace quick-disconnect coupling half (WP 0096).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DISCHARGE PIPING ASSEMBLY LEAKS FUEL AT COUPLINGS TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

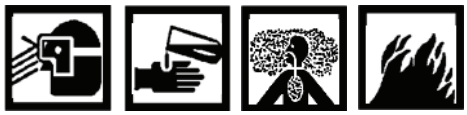
References

WP 0048

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

DISCHARGE PIPING ASSEMBLY LEAKS FUEL AT COUPLINGS

SYMPTOM

Discharge piping assembly leaks fuel at couplings.

MALFUNCTION

Couplings are loose or improperly installed.

CORRECTIVE ACTION

Tighten coupling on discharge piping assembly (WP 0048).

MALFUNCTION

Couplings are damaged or defective.

CORRECTIVE ACTION

Replace coupling assembly on discharge piping assembly (WP 0048).

MALFUNCTION

Discharge piping assembly is damaged or defective.

CORRECTIVE ACTION

Replace discharge piping assembly (WP 0048).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DISCHARGE PIPING ASSEMBLY LEAKS FUEL AT 1 IN. (2.54 CM) OR 2 IN. (5.08 CM) DISCHARGE HOSE TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

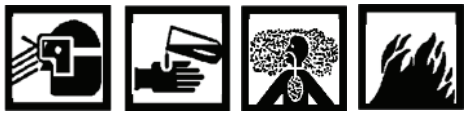
References

WP 0052

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

DISCHARGE PIPING ASSEMBLY LEAKS FUEL AT 1 IN. (2.54 CM) OR 2 IN. (5.08 CM) DISCHARGE HOSE

SYMPTOM

Discharge piping assembly leaks fuel at 1 in. (2.54 cm) or 2 in. (5.08 cm) discharge hose.

MALFUNCTION

1 in. (2.54 cm) or 2 in. (5.08 cm) discharge fuel hose is loose or improperly installed.

CORRECTIVE ACTION

Tighten 1 in. (2.54 cm) or 2 in. (5.08 cm) discharge fuel hose on discharge piping assembly (WP 0052).

MALFUNCTION

1 in. (2.54 cm) or 2 in. (5.08 cm) discharge fuel hose is damaged or defective.

CORRECTIVE ACTION

Replace damaged or defective 1 in. (2.54 cm) or 2 in. (5.08 cm) discharge fuel hose on discharge piping assembly (WP 0052).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

BUTTERFLY VALVE LEAKS FUEL AT DISCHARGE PIPING ASSEMBLY CONNECTION

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0049

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

BUTTERFLY VALVE LEAKS FUEL AT DISCHARGE PIPING ASSEMBLY CONNECTION

SYMPTOM

Butterfly valve leaks fuel at discharge piping assembly connection.

MALFUNCTION

Gasket between discharge piping assembly and butterfly valve is damaged or defective.

CORRECTIVE ACTION

Replace damaged or defective discharge piping assembly butterfly valve gasket (WP 0049).

MALFUNCTION

Butterfly valve is damaged or defective.

CORRECTIVE ACTION

Repair butterfly valve (WP 0049).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DISCHARGE ARM ASSEMBLY LEAKS FUEL

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0052

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

DISCHARGE ARM ASSEMBLY LEAKS FUEL

SYMPTOM

Discharge arm assembly leaks fuel.

MALFUNCTION

Couplings are loose or improperly installed.

CORRECTIVE ACTION

Tighten left hand or right hand discharge arm assembly coupling (WP 0052).

MALFUNCTION

Couplings are damaged or defective.

CORRECTIVE ACTION

1. Replace damaged left or right hand discharge arm assembly seals (WP 0052).
2. If condition still exists, replace left hand or right hand discharge arm assembly coupling (WP 0052)

DISCHARGE ARM ASSEMBLY LEAKS FUEL – CONTINUED

MALFUNCTION

Discharge arm assembly leaks at joints and connections.

CORRECTIVE ACTION

1. Repair damaged left or right hand discharge arm assembly seals (WP 0052).
2. If condition still exists, replace left hand or right hand discharge arm assembly coupling (WP 0052).

MALFUNCTION

Discharge arm assembly leaks at valves.

CORRECTIVE ACTION

Replace valve (WP 0052).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DISCHARGE OR SUCTION HOSE LEAKS FUEL
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0113
WP 0114

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

DISCHARGE OR SUCTION HOSE LEAKS FUEL

SYMPTOM

Discharge or suction hose leaks fuel.

MALFUNCTION

Discharge or suction hose damaged or defective.

CORRECTIVE ACTION

1. Repair discharge hose (WP 0113) or suction hose (WP 0114).
2. If condition still exists, dispose of discharge or suction hose IAW local Standard Operating Procedures (SOP) and order replacement.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TEE ASSEMBLY LEAKS FUEL OR WILL NOT CONNECT WITH OTHER COMPONENTS TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

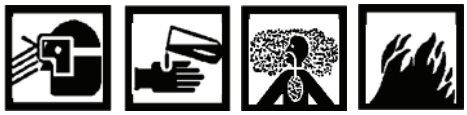
References

WP 0117

Equipment Condition

TRM set on level ground

WARNING



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TROUBLESHOOTING PROCEDURE

TEE ASSEMBLY LEAKS FUEL

SYMPTOM

Tee assembly leaks fuel.

MALFUNCTION

Tee assembly gasket damaged or defective.

CORRECTIVE ACTION

Repair tee assembly gasket (WP 0117).

MALFUNCTION

Damaged or defective butterfly valve.

CORRECTIVE ACTION

Repair tee assembly (WP 0117).

TEE ASSEMBLY WILL NOT CONNECT WITH OTHER COMPONENTS

SYMPTOM

Tee assembly will not connect with other components.

MALFUNCTION

Tee assembly damaged or defective.

CORRECTIVE ACTION

Repair tee assembly (WP 0117) or dispose of tee assembly IAW local SOP and order replacement.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

NATO ADAPTER LEAKS FUEL

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0089

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

NATO ADAPTER LEAKS FUEL

SYMPTOM

North Atlantic Treaty Organization (NATO) adapter leaks fuel.

MALFUNCTION

Defective or damaged NATO connector.

CORRECTIVE ACTION

Repair damaged NATO connector (WP 0089).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL LEAKS FROM FLOW METER OR REGISTER DOES NOT READ CORRECTLY TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Equipment Condition

TRM prepared for retail operation (TM 10-4930-370-10)
TRM set on level ground

References

WP 0002
WP 0060

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

FUEL LEAKS FROM FLOW METER OR REGISTER DOES NOT READ CORRECTLY

NOTE

- Refer to WP 0002 for flow meter location.
- There are no field troubleshooting steps for a flow meter that is not reading correctly. The defective flow meter will need to be removed and replaced (WP 0060).

STEP

1. Check to see if fuel is leaking from any fitting on flow meter.

CONDITION/INDICATION

Is fuel leaking from fitting(s)?

DECISION

YES – Proceed to Malfunction Loose fitting. NO – Proceed to Step 2.

FUEL LEAKS FROM FLOW METER OR REGISTER DOES NOT READ CORRECTLY - CONTINUED

MALFUNCTION

Loose fitting.

ACTION

a. Shut down power source, and disconnect power source from TRM.
b. Disassemble and assemble loose fitting(s) (WP 0060).
c. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).
d. Return to Step 1 and repeat all troubleshooting steps if condition still exists.
e. Continue fueling operations if condition is fixed.

STEP

2. Check to see if fuel is leaking from flow meter cover seal.

CONDITION/INDICATION

Is fuel leaking from flow meter cover seal?

DECISION

YES – Proceed to Malfunction Fuel leaking from flow meter cover seal.

NO – Return to Step 1 and repeat all troubleshooting steps if condition still exists.

MALFUNCTION

Fuel leaking from flow meter cover seal.

ACTION

a. Shut down power source, and disconnect power source from TRM.
b. Remove and replace flow meter (WP 0060).
c. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).
d. Return to Step 1 and repeat all troubleshooting steps if condition still exists.
e. Continue fueling operations if condition is fixed.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

NON-VALVED, UNISEX COUPLING ASSEMBLY LEAKS FUEL OR WILL NOT CONNECT WITH OTHER COMPONENTS TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0053
WP 0054

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

NON-VALVED, UNISEX COUPLING ASSEMBLY LEAKS FUEL

SYMPTOM

Non-valved, unisex coupling assembly leaks fuel.

MALFUNCTION

Non-valved, unisex coupling assembly loose or improperly installed.

CORRECTIVE ACTION

Tighten non-valved, unisex coupling assembly (WP 0054).

MALFUNCTION

Dust cap missing.

CORRECTIVE ACTION

Install dust cap on non-valved, unisex coupling assembly (WP 0054).

MALFUNCTION

Missing, damaged or defective seal.

CORRECTIVE ACTION

Replace non-valved, unisex coupling assembly seal (WP 0054).

NON-VALVED, UNISEX COUPLING ASSEMBLY WILL NOT CONNECT WITH OTHER COMPONENTS

SYMPTOM

Non-valved, unisex coupling assembly will not connect with other components.

MALFUNCTION

Non-valved, unisex coupling assembly damaged or defective.

CORRECTIVE ACTION

Replace damaged or defective non-valved unisex coupling assembly (WP 0053).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

VALVED, UNISEX COUPLING ASSEMBLY LEAKS FUEL OR WILL NOT CONNECT WITH OTHER COMPONENTS

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0052

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

VALVED, UNISEX COUPLING ASSEMBLY LEAKS FUEL

SYMPTOM

Valved, unisex coupling assembly leaks fuel.

MALFUNCTION

Valved, unisex coupling assembly loose or improperly installed.

CORRECTIVE ACTION

Check valved, unisex coupling assembly for proper tightness by repairing left hand or right hand discharge arm (WP 0052).

MALFUNCTION

Dust cap missing.

CORRECTIVE ACTION

Install cap, bumper, and seal on valved, unisex coupling assembly (WP 0052).

MALFUNCTION

Missing, damaged or defective seal.

CORRECTIVE ACTION

Remove and install seal by performing cap, bumper, and seal task (WP 0052).

VALVED, UNISEX COUPLING ASSEMBLY WILL NOT CONNECT WITH OTHER COMPONENTS

SYMPTOM

Valved, unisex coupling assembly will not connect with other components.

MALFUNCTION

Valved, unisex coupling assembly damaged or defective.

CORRECTIVE ACTION

Replace damaged or defective valved unisex coupling assembly by repairing left hand or right hand discharge arm (WP 0052).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

NOZZLE ASSEMBLY LEAKS FUEL OR WILL NOT CONNECT WITH OTHER COMPONENTS TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0088

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

NOZZLE ASSEMBLY LEAKS FUEL

SYMPTOM

Nozzle assembly leaks fuel at unisex coupling.

MALFUNCTION

Nozzle assembly damaged or defective.

CORRECTIVE ACTION

Repair nozzle assembly (WP 0088).

NOZZLE ASSEMBLY WILL NOT CONNECT WITH OTHER COMPONENTS

SYMPTOM

Nozzle assembly will not connect with other components.

MALFUNCTION

Nozzle assembly damaged or defective.

CORRECTIVE ACTION

Dispose of nozzle assembly IAW local SOP and order replacement nozzle assembly (WP 0088).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL LEAKS FROM FUEL PUMP ASSEMBLY INLET OR RETURN HOSES TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0002
WP 0062

Equipment Condition

TRM set on level ground

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

NOTE

See WP 0002 for location of fuel pump assembly.

TROUBLESHOOTING PROCEDURE

FUEL LEAKS FROM FUEL PUMP ASSEMBLY INLET OR RETURN HOSES

STEP

1. Check to see if fuel is leaking around hoses near any hose clamps.

CONDITION/INDICATION

Is fuel leaking from hoses near hose clamp?

DECISION

YES – Proceed to Malfunction Loose hose clamp. NO – Proceed to Step 2.

MALFUNCTION

Loose hose clamp.

ACTION

a. Shut down power source, and disconnect power source from TRM.

b. Reposition and secure loose hose clamp(s).

FUEL LEAKS FROM FUEL PUMP ASSEMBLY INLET OR RETURN HOSES – CONTINUED

c. Replace any damaged hose clamps.

d. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).

e. Return to Step 1 and repeat all troubleshooting steps if condition still exists.

f. Continue fueling operations if condition is fixed.

STEP

2. Check to see if return or inlet hose of fuel pump assembly is damaged.

CONDITION/INDICATION

Is fuel leaking from a damaged hose?

DECISION

YES – Proceed to Malfunction Damaged hose. NO – Repeat troubleshooting steps until leak is isolated.

MALFUNCTION

Damaged hose.

ACTION

a. Shut down power source, and disconnect power source from TRM.

b. Replace damaged hose (WP 0062).

c. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).

d. Return to Step 1 and repeat all troubleshooting steps if condition still exists.

e. Continue fueling operations if condition is fixed.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL LEAKS FROM FUEL PUMP ASSEMBLY

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

References

WP 0002
WP 0028
WP 0055

Equipment Condition

TRM set on level ground

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

NOTE

See WP 0002 for location of fuel pump assembly.

TROUBLESHOOTING PROCEDURE

FUEL LEAKS FROM FUEL PUMP ASSEMBLY

STEP

Check to see if fuel pump assembly or fittings on fuel pump assembly are leaking.

CONDITION/INDICATION

Is fuel pump assembly or fittings leaking?

DECISION

YES – Proceed to Malfunction Fuel pump assembly damaged or defective.

NO – Isolate leak in hoses or clamps (WP 0028).

MALFUNCTION

Fuel pump assembly damaged or defective.

ACTION

a. Shut down power source, and disconnect power source from TRM.
b. Replace leaking fuel pump assembly or fittings (WP 0055).

FUEL LEAKS FROM FUEL PUMP ASSEMBLY - CONTINUED

c. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).

d. Continue fueling operations if condition is fixed.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FILTER/SEPARATOR LEAKS FUEL
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

References

WP 0064
WP 0065

Equipment Condition

TRM set on level ground

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

FILTER/SEPARATOR LEAKS FUEL

STEP

NOTE

Components of filter/separator to check for leaks include sight gauge, differential pressure gauge, drain valve (V15 valve), air vent valve (V16 valve), cover, seal, and sampling ports. See TM 10-4930-370-10 for location of components.

1. Check to see if fuel is leaking from any component(s) of filter/separator.

CONDITION/INDICATION

Is fuel leaking from any component(s) of filter/separator?

DECISION

YES – Proceed to Malfunction Fuel leaking from component(s) of filter/separator.

NO – Go to Step 2.

MALFUNCTION

Fuel leaking from component(s) of filter/separator.

ACTION

a. Shut down power source, and disconnect power source from TRM.

b. Replace leaking component(s) of filter/separator (WP 0065).

c. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).

d. Return to Step 1 and repeat all troubleshooting steps if condition still exists.

e. Continue fueling operations if condition is fixed.

STEP

2. Check to see if fuel is leaking from any fitting (Figure 1, Item 2) on filter/separator.

CONDITION/INDICATION

Is fuel leaking from fitting(s) (Figure 1, Item 2)?

DECISION

YES – Proceed to Malfunction Loose fitting.

NO – Return to Step 1 and repeat all troubleshooting steps if condition still exists.

MALFUNCTION

Loose fitting.

ACTION

a. Shut down power source, and disconnect power source from TRM.

b. Disassemble and assemble any loose fitting(s) (Figure 1, Item 2) (WP 0064).

FILTER/SEPARATOR LEAKS FUEL – CONTINUED

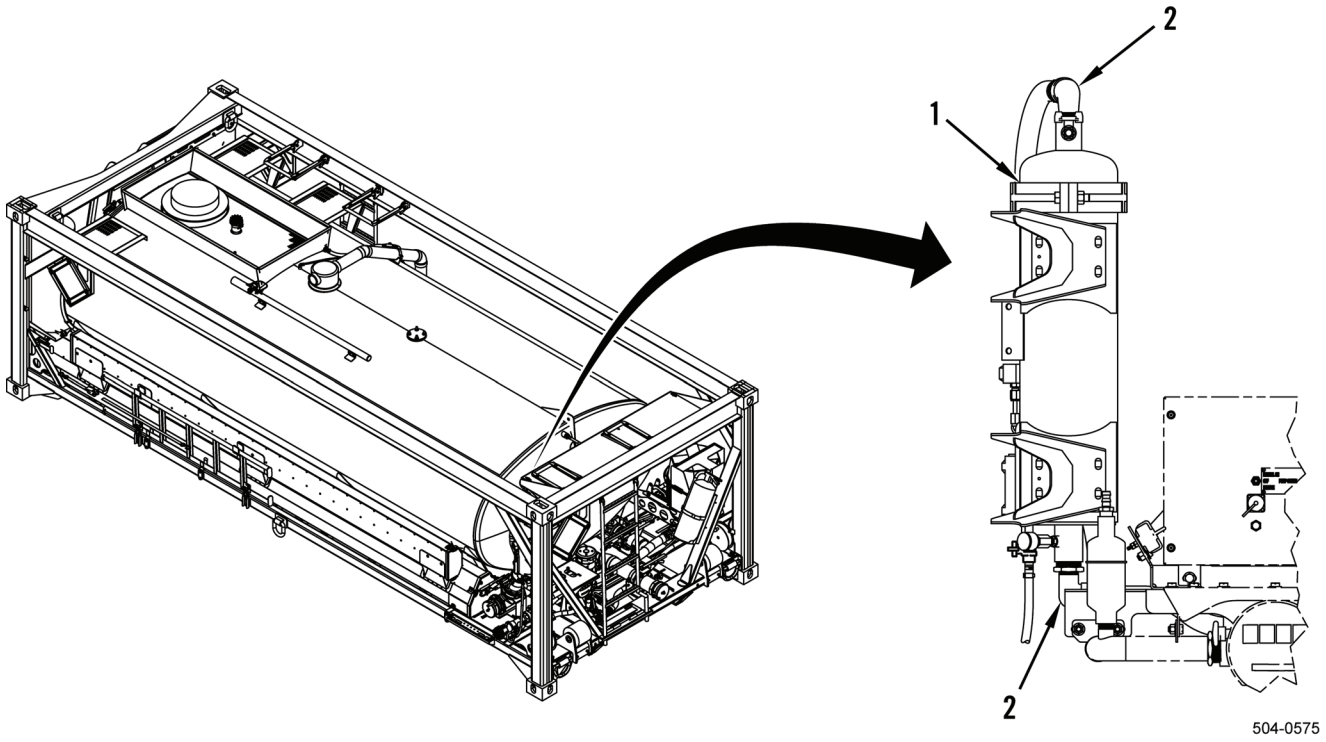


Figure 1. Fittings.

c. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).
d. Return to Step 1 and repeat all troubleshooting steps if condition still exists.
e. Continue fueling operations if condition is fixed.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL PUMP ASSEMBLY MOTOR RUNS, BUT NO FUEL FLOW TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Fire extinguisher (TM 10-4930-370-10)

Personnel Required

Two

References

WP 0002

References – Continued

WP 0055
WP 0058

Equipment Condition

TRM set on level ground
TRM prepared for retail operation (TM 10-4930-370-10)

NOTE

See WP 0002 for location of fuel pump assembly.

TROUBLESHOOTING PROCEDURE

FUEL PUMP MOTOR RUNS, BUT NO FUEL FLOW

STEP

1. Check to see if fuel pump motor is operating.

CONDITION/INDICATION

Does fuel pump assembly motor run, but no fuel flow?

DECISION

YES – Proceed to Malfunction Fuel pump assembly or coupling damaged.

NO – Continue fueling operations.

MALFUNCTION

Fuel pump assembly or coupling damaged.

ACTION

a. Shut down power source, and disconnect power source from TRM.
b. Remove motor (WP 0058) to access coupling half and flexible coupling.
c. Inspect coupling for damage, and replace if damaged (WP 0058).
d. If coupling is not damaged, replace damaged or defective fuel pump assembly (WP 0055).
e. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).
f. Continue fueling operations if condition is fixed.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Multimeter (WP 0182, Item 10)

Personnel Required

Two

References

WP 0006
WP 0058

References—Continued

WP 0068
WP 0069
WP 0070

Equipment Condition

TRM set on level ground
TRM prepared for retail operation (TM 10-4930-370-10)

WARNING

- There are Direct Current (DC) voltages at electrical connections. Only use test probes of multimeter to touch live connections. Do not short any positive with ground/negative.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

NOTE

- EMI control box has two circuit breakers: 2A on the front cover and 50A inside the box.
- Identify controls and indicators IAW TM 10-4930-370-10.

TROUBLESHOOTING PROCEDURE

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH

STEP

1. Check to see if 2A circuit breaker (Figure 1, Item 2) on front of EMI control box (Figure 1, Item 1) is tripped.

CONDITION/INDICATION

Is 2A circuit breaker tripped?

DECISION

YES – Proceed to step 2. NO – Proceed to step 3.

STEP

2. Reset 2A circuit breaker (Figure 1, Item 2).

CONDITION/INDICATION

Is 2A circuit breaker tripped again?

DECISION

YES – Proceed to Malfunction Faulty diode assembly. NO – Proceed to step 3.

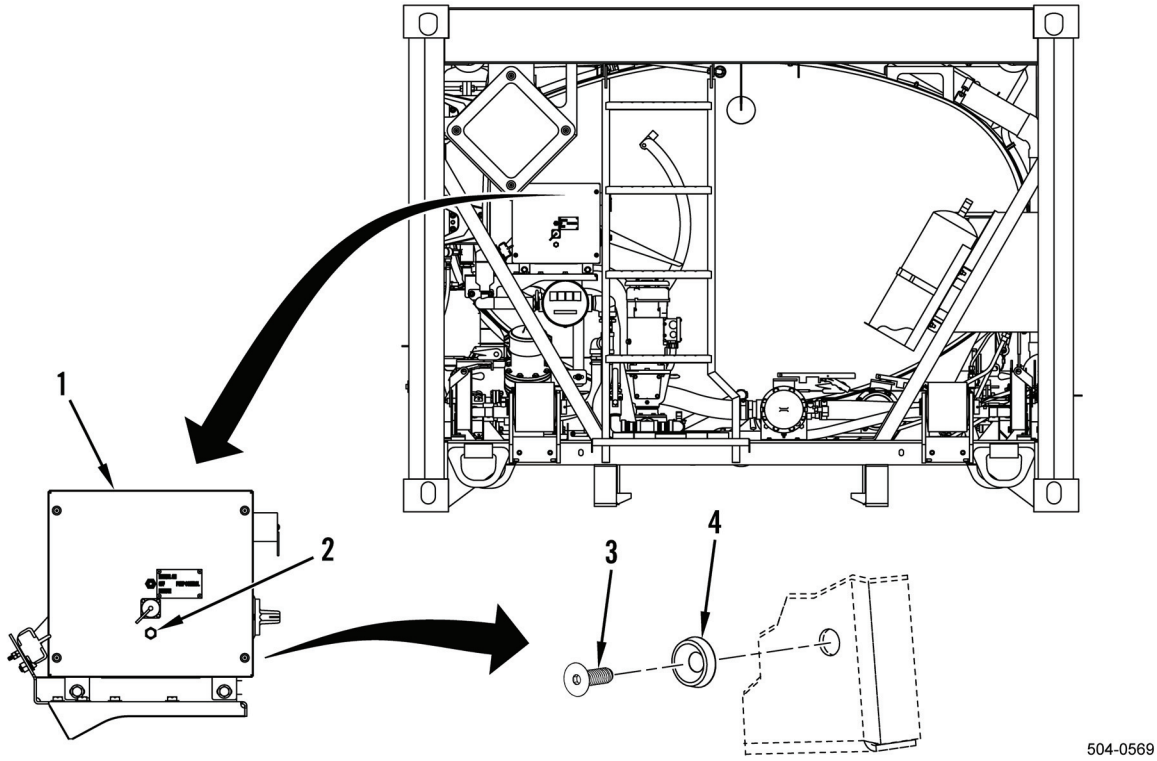


Figure 1. 2A Circuit Breaker.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

MALFUNCTION

Faulty diode assembly.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Remove diode assembly (WP 0068).
d. Disconnect two connectors from two diodes.
e. Use Component Location/Connector End Views (WP 0006) to identify diode assembly wiring.

NOTE

Use diode test function on multimeter when checking the diodes. A properly functioning diode will show 0.4 to 0.5 VDC in one direction and 0 VDC in the other direction.

f. Use diode function to check each diode:
   1. From pin one to pin two.
   2. From pin two to pin one.
g. Replace diode assembly if readings obtained in step f are outside range of 0.4 to 0.5 VDC.
h. Check for continuity between each socket in connectors to each corresponding wire terminal on wires.
i. Replace diode assembly if any test point in step h does not have continuity.
j. Install diode assembly (WP 0068).
k. Close EMI control box (Figure 1, Item 1) cover, and install four screws (Figure 1, Item 3) and washers (Figure 1, Item 4) in EMI control box.
l. Reset 2A circuit breaker (Figure 1, Item 2).
m. Connect power source to TRM, and start power source.
n. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
o. Return to step 1 and repeat all troubleshooting steps if condition still exists.
p. Continue fueling operations if condition is fixed.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

STEP

3. Shut down power source.
4. Disconnect power source from TRM.
5. Remove four screws (Figure 2, Item 4) and washers (Figure 2, Item 3) from EMI control box (Figure 2, Item 2), and open cover.
6. Check to see if 50A circuit breaker (Figure 2, Item 1) is tripped.

CONDITION/INDICATION

Is 50A circuit breaker tripped?

DECISION

YES – Proceed to Step 7. NO – Proceed to Step 15.

STEP

7. Press reset button (Figure 2, Item 5) of 50A circuit breaker (Figure 2, Item 1).
8. Close EMI control box (Figure 2, Item 2) cover, and install four screws (Figure 2, Item 4) and washers (Figure 2, Item 3) in EMI control box.
9. Connect power source to TRM, and start power source.
10. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

CONDITION/INDICATION

Is fuel pump motor assembly running?

DECISIONS

YES – Continue fueling operation. NO – Proceed to Step 11.

STEP

11. Shut down power source.
12. Disconnect power source from TRM.
13. Remove four screws (Figure 2, Item 4) and washers (Figure 2, Item 3) from EMI control box (Figure 2, Item 2), and open cover.
14. Check to see if 50A circuit breaker (Figure 2, Item 1) is tripped again.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

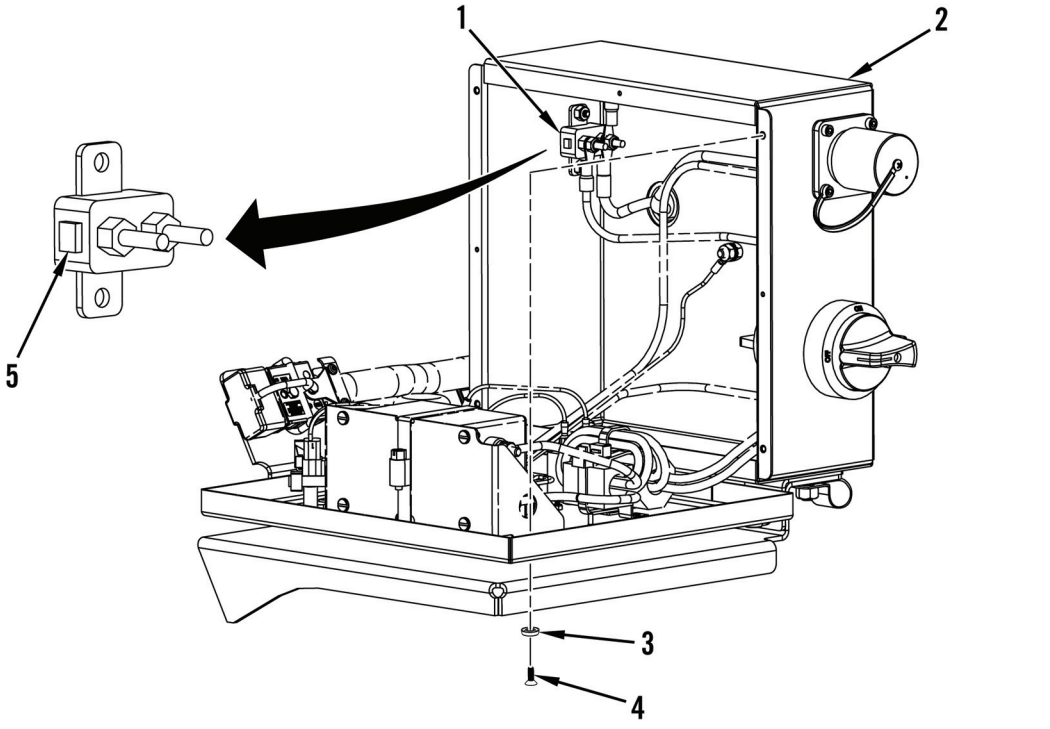


Figure 2. 50A Circuit Breaker.

CONDITION/INDICATION

Is 50A circuit breaker tripped again?

DECISION

YES – Proceed to Step 45. NO – Proceed to Step 15.

STEP

15. Make sure power source is connected to TRM, and start power source.
16. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

17. Use a multimeter to measure for 18 – 32 VDC from 50A circuit breaker (Figure 3, Item 1) line terminal (Figure 3, Item 3) to negative (-) black wire terminal (Figure 3, Item 5) on NATO slave connector (Figure 3, Item 4).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Step 18. NO – Proceed to Step 41.

STEP

18. Use a multimeter to measure for 18 – 32 VDC between 50A circuit breaker (Figure 3, Item 1) load terminal (Figure 3, Item 2) and negative (-) black wire terminal (Figure 3, Item 5) on NATO slave connector (Figure 3, Item 4).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Step 19. NO – Proceed to Malfunction Faulty 50A circuit breaker.

MALFUNCTION

Faulty 50A circuit breaker.

ACTION

a. Shut down power source.

b. Disconnect power source from TRM.

c. Replace 50A circuit breaker (WP 0068).

d. Close EMI control box cover, and install four screws (Figure 3, Item 10) and washers (Figure 3, Item 9) in EMI control box.

e. Connect power source to TRM, and start power source.

f. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

g. Return to step 1 and repeat all troubleshooting steps if condition still exists.

h. Continue fueling operations if condition is fixed.

STEP

19. Use a multimeter to measure for 18 – 32 VDC between (+) white wire terminal (Figure 3, Item 6) on master switch (Figure 3, Item 7) and negative (-) black wire terminal (Figure 3, Item 5) on NATO slave connector (Figure 3, Item 4).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

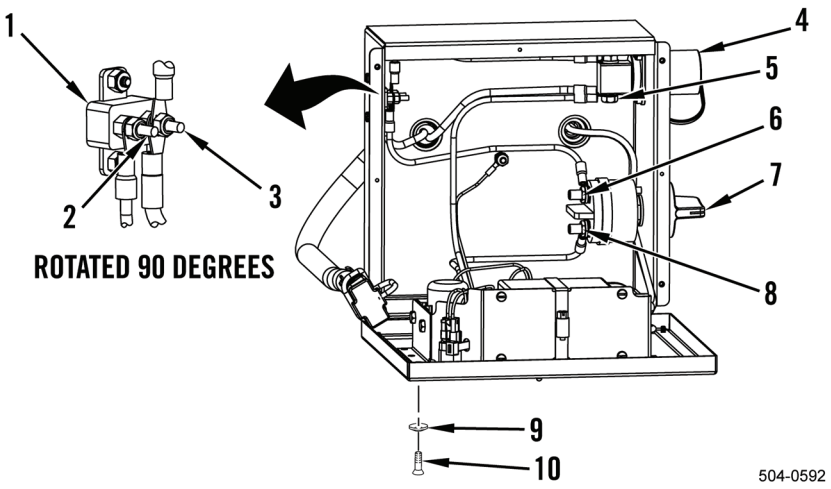


Figure 3. 50A Circuit Breaker and Master Switch.

DECISION

YES – Proceed to Step 20.

NO – Proceed to Malfunction Faulty white wire.

MALFUNCTION

Faulty white wire.

ACTION

a. Shut down power source.

b. Disconnect power source from TRM.

c. Replace white wire (WP 0068).

d. Close EMI control box cover, and install four screws (Figure 3, Item 10) and washers (Figure 3, Item 9) in EMI control box.

e. Connect power source to TRM, and start power source.

f. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

g. Return to step 1 and repeat all troubleshooting steps if condition still exists.

h. Continue fueling operations if condition is fixed.

STEP

20. Use a multimeter to measure for 18 – 32 VDC between orange wire terminal (Figure 3, Item 8) on master switch (Figure 3, Item 7) and negative (-) black wire terminal (Figure 3, Item 5) on NATO slave connector (Figure 3, Item 4).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

DECISION

YES – Proceed to Step 21. NO – Proceed to Malfunction Faulty master switch.

MALFUNCTION

Faulty master switch.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Replace master switch (WP 0068).
d. Close EMI control box cover, and install four screws (Figure 4, Item 4) and washers (Figure 4, Item 3) in EMI control box.
e. Connect power source to TRM, and start power source.
f. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
g. Return to step 1 and repeat all troubleshooting steps if condition still exists.
h. Continue fueling operations if condition is fixed.

STEP

21. Use a multimeter to measure for 18 – 32 VDC between line side orange wire terminal (Figure 4, Item 5) of relay and negative (-) black wire terminal (Figure 4, Item 2) on NATO slave connector (Figure 4, Item 1).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Step 22. NO – Proceed to Malfunction Faulty orange wire.

MALFUNCTION

Faulty orange wire.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Replace orange wire (WP 0068).
d. Close EMI control box cover, and install four screws (Figure 4, Item 4) and washers (Figure 4, Item 3) in EMI control box.
e. Connect power source to TRM, and start power source.
f. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
g. Return to step 1 and repeat all troubleshooting steps if condition still exists.
h. Continue fueling operations if condition is fixed.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

STEP

22. Use a multimeter to measure for 18 – 32 VDC between load side red wire terminal of relay (Figure 4, Item 8) and negative (-) black wire terminal (Figure 4, Item 2) on NATO slave connector (Figure 4, Item 1).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Step 25. NO – Proceed to Step 23.

STEP

23. Turn master switch to ON position.

24. Use a multimeter to measure for 18 – 32 VDC between coil red wire (Figure 4, Item 6) and blue wire (Figure 4, Item 7) terminals of relay.

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Malfunction Faulty relay. NO – Proceed to Malfunction Faulty red wire of relay.

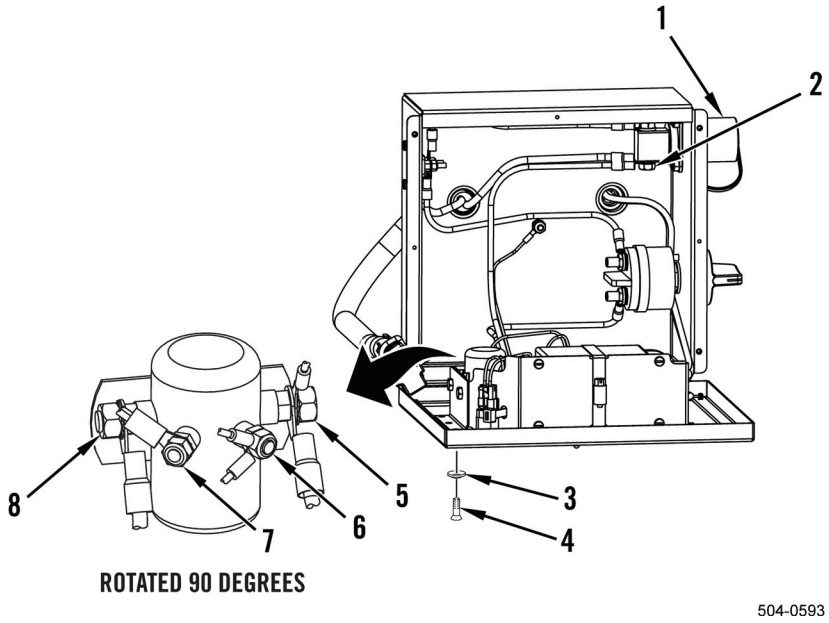


Figure 4. Relay Test Points.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

MALFUNCTION

Faulty relay.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Replace relay (WP 0068).
d. Close EMI control box cover, and install four screws (Figure 5, Item 6) and washers (Figure 5, Item 7) in EMI control box.
e. Connect power source to TRM, and start power source.
f. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
g. Return to step 1 and repeat all troubleshooting steps if condition still exists.
h. Continue fueling operations if condition is fixed.

MALFUNCTION

Faulty red wire of relay.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Replace red wire (WP 0068).
d. Close EMI control box cover, and install four screws (Figure 5, Item 6) and washers (Figure 5, Item 7) in EMI control box.
e. Connect power source to TRM, and start power source.
f. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
g. Return to step 1 and repeat all troubleshooting steps if condition still exists.
h. Continue fueling operations if condition is fixed.

STEP

25. Use a multimeter to measure for 18 – 32 VDC between EMI filter line side red wire (Figure 5, Item 3) and negative (-) black wire terminal (Figure 5, Item 2) on NATO slave connector (Figure 5, Item 1).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Step 26.

NO – Proceed to Malfunction Faulty red wire of EMI filter.

MALFUNCTION

Faulty red wire of EMI filter.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

c. Replace red wire (WP 0068).

d. Close EMI control box cover, and install four screws (Figure 5, Item 6) and washers (Figure 5, Item 7) in EMI control box.

e. Connect power source to TRM, and start power source.

f. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

g. Return to step 1 and repeat all troubleshooting steps if condition still exists.

h. Continue fueling operations if condition is fixed.

STEP

26. Use a multimeter to measure for 18 – 32 VDC between EMI filter load side red wire (Figure 5, Item 5) and negative (-) black wire terminal (Figure 5, Item 2) on NATO slave connector (Figure 5, Item 1).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Step 27.

NO – Proceed to Malfunction Faulty EMI filter.

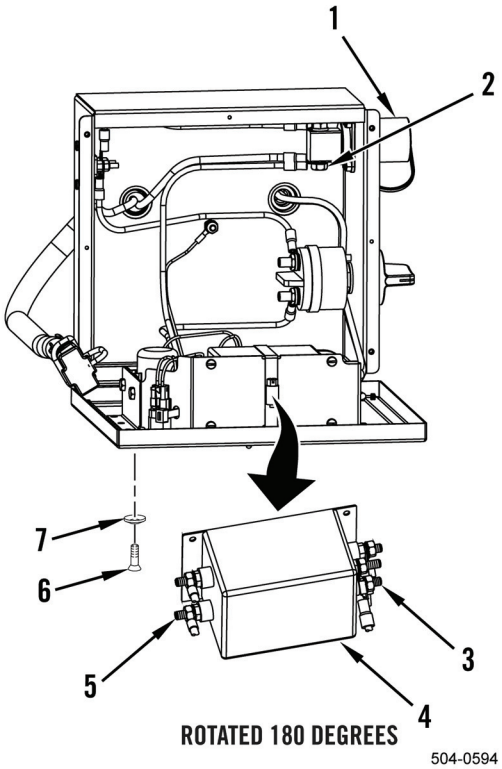


Figure 5. EMI Filter Test Points.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

MALFUNCTION

Faulty EMI filter.

ACTION

a. Shut down power source.

b. Disconnect power source from TRM.

c. Replace EMI filter (WP 0068).

d. Close EMI control box cover, and install four screws (Figure 5, Item 6) and washers (Figure 5, Item 7) in EMI control box.

e. Connect power source to TRM, and start power source.

f. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

g. Return to step 1 and repeat all troubleshooting steps if condition still exists.

h. Continue fueling operations if condition is fixed.

STEP

27. Shut down power source.

28. Disconnect power source from TRM.

CAUTION

Conduit box cover has sealant around edges. Use a tool with a sharp edge to cut through sealant before removing conduit box cover. Failure to comply may result in damage to conduit box.

29. Remove two screws (Figure 6, Item 3) and cover (Figure 6, Item 4) from conduit box (Figure 6, Item 2) of motor (Figure 6, Item 1).

30. Pull bundle of wires gently from conduit box.

31. Remove two cable ties from four wire boots and slide wire boots back on wires.

32. Check wires for damage. Replace wires if damage is found (WP 0068).

33. Make sure power source is connected to TRM, and start power source.

34. Use a multimeter to measure for 18 – 32 VDC from two red wire terminals (Figure 6, Item 6) of motor (Figure 6, Item 1) to two black wire terminals (Figure 6, Item 5) of motor.

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Malfunction Faulty motor. NO – Proceed to Step 35.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

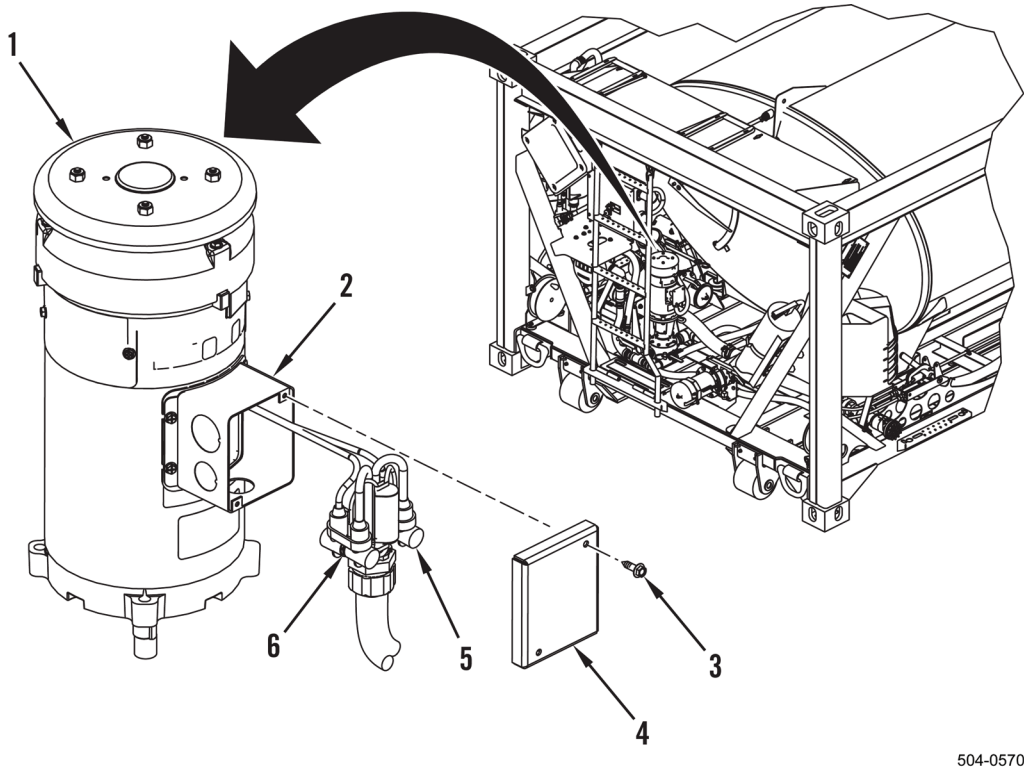


Figure 6. Check Fuel Pump Motor Assembly Voltage.

MALFUNCTION

Faulty motor.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Replace motor assembly (WP 0058) and verify condition no longer exists.
d. Continue fueling operations.
e. Return to step 1 and repeat all troubleshooting steps if condition still exists.

STEP

35. Shut down power source.
36. Disconnect power source from TRM.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

37. Check continuity of red wire (Figure 7, Item 7) of motor (Figure 7, Item 1) to red wire (Figure 7, Item 4) of EMI filter (Figure 7, Item 3).

CONDITION/INDICATION

Is there continuity between motor wires?

DECISION

YES – Proceed to step 38.

NO – Replace motor cable assembly (WP 0069). Continue fueling operations or return to step 1 and repeat all troubleshooting steps if condition still exists.

STEP

38. Check continuity of black wire (Figure 7, Item 6) of motor (Figure 7, Item 1) to black wire (Figure 7, Item 5) of EMI filter (Figure 7, Item 3).

CONDITION/INDICATION

Is there continuity between motor wires?

DECISION

YES – Proceed to step 39.

NO – Replace motor cable assembly (WP 0069). Continue fueling operations or return to step 1 and repeat all troubleshooting steps if condition still exists.

STEP

39. Remove capacitor (WP 0070).

40. Check resistance reading between two red and black wire terminals (Figure 7, Items 2 and 8) of motor (Figure 7, Item 1).

CONDITION/INDICATION

Is the motor resistance 3 to 6 Ohms?

DECISION

YES – Install capacitor (WP 0070). Verify the condition still exists, and repeat troubleshooting steps until fault is isolated.

NO – Proceed to Malfunction Fault in motor windings.

MALFUNCTION

Fault in motor windings.

ACTION

a. Shut down power source.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

b. Disconnect power source from TRM.

c. Replace motor assembly (WP 0058).

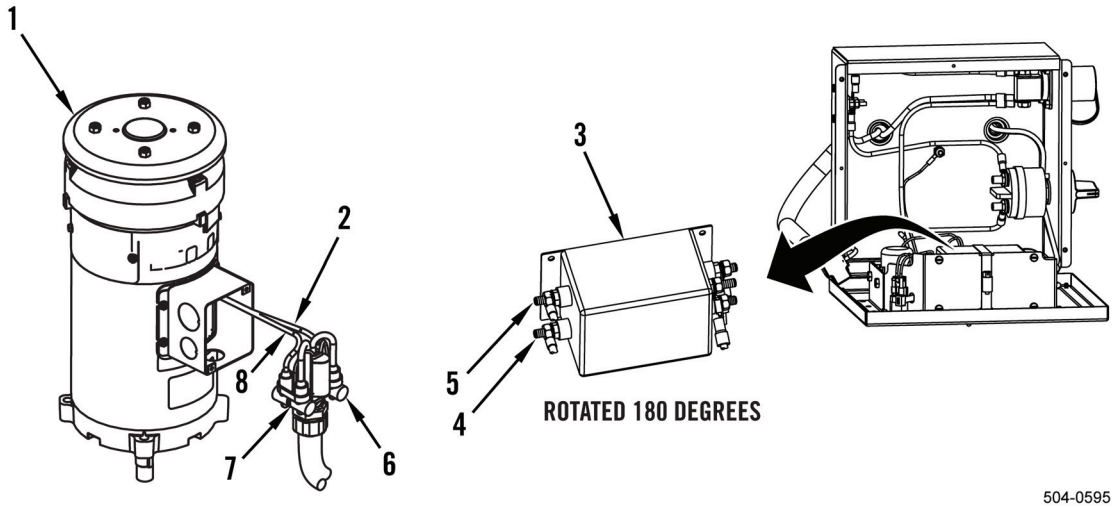


Figure 7. Check Fuel Pump Motor Assembly Voltage.

STEP

41. Determine power source.

CONDITION/INDICATION

Is power source using NATO plug connected to side of EMI control box?

DECISION

YES – Proceed to Step 42.

NO – Proceed to Step 43.

STEP

42. Use a multimeter to measure for 18 – 32 VDC between positive (+) wire terminal and negative (-) black wire terminal on NATO slave connector of power source.

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Malfunction Faulty 50A circuit breaker or white wire.

NO – Check power source IAW local SOP. Continue fueling operations or return to step 1 and repeat all trouble-shooting steps if condition still exists.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

MALFUNCTION

Faulty 50A circuit breaker or white wire.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Remove white wire from NATO connector positive terminal (Figure 8, Item 2).
d. Use a multimeter to check white wire terminal (Figure 8, Item 1) to line side of 50A circuit breaker for continuity.
e. If there is no continuity, remove and replace white wire of 50A circuit breaker (WP 0069).
f. If there is continuity, remove and replace 50A circuit breaker (WP 0068).
g. Close EMI control box cover, and install four screws (Figure 8, Item 5) and washers (Figure 8, Item 6) in EMI control box.
h. Connect power source to TRM, and start power source.
i. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
j. Return to step 1 and repeat all troubleshooting steps if condition still exists.
k. Continue fueling operations if condition is fixed.

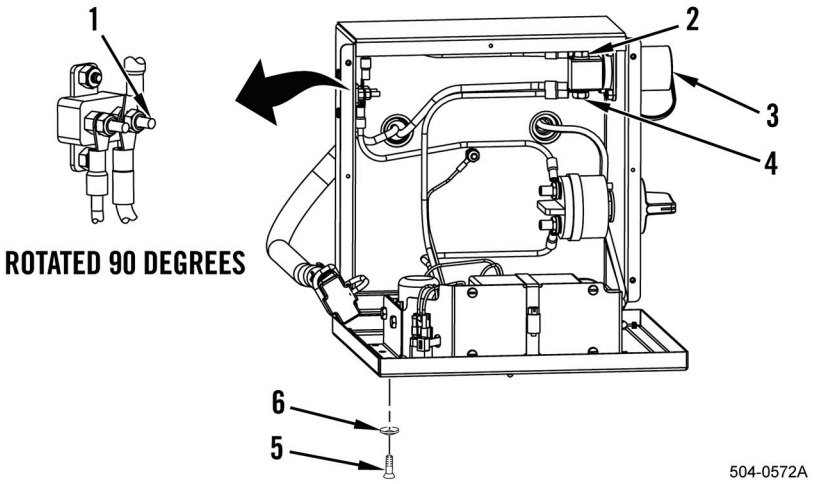


Figure 8. White Wire of 50A Circuit Breaker.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

STEP

43. Use a multimeter to measure for 18 – 32 VDC between positive and negative connector terminals of 40 ft (12.2 m) slave cable end that connects to EMI control box.

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Proceed to Step 44.

NO – Proceed to Malfunction Faulty 40 ft (12.2 m) slave cable.

MALFUNCTION

Faulty 40 ft (12.2 m) slave cable.

ACTION

a. Shut down power source.

b. Disconnect power source from TRM.

c. Disconnect 40 ft (12.2 m) slave cable from power source.

d. Check for continuity across white (+) and black (-) wires of 40 ft (12.2 m) slave cable.

NOTE

NATO connector center post is positive and outer slotted ring is negative.

e. Check NATO end or genset end cable assembly for continuity if 40 ft (12.2 m) slave cable has continuity.

f. Replace any cable if there is no continuity.

g. If all cables test good, isolate fault in power source.

h. Continue fueling operation.

i. If condition still exists, return to step 1 and repeat all troubleshooting steps.

STEP

44. Use a multimeter to measure for 18 – 32 VDC between 50A circuit breaker line side (Figure 8, Item 1) and negative (-) black wire terminal (Figure 8, Item 4) on NATO slave connector (Figure 8, Item 3).

CONDITION/INDICATION

Is there 18 – 32 VDC between wire terminals?

DECISION

YES – Verify condition no longer exists and continue fueling operation.

NO – Proceed to Malfunction Faulty 28 VDC power input connector.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

MALFUNCTION

Faulty 28 VDC power input connector.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Use a multimeter to check for continuity of white (+) and black (-) wires of 28 VDC power input connector.
d. If there is continuity, verify the fuel pump assembly operates.
e. If there is no continuity, replace 28 VDC power input connector (part of slave cable assembly) (WP 0069).
f. Continue fueling operation.
g. If condition still exists, return to step 1 and repeat all troubleshooting steps.

STEP

45. Shut down power source.
46. Disconnect power source from TRM.
47. Use a multimeter to measure for continuity between ground stud (Figure 9, Item 1) at rear of EMI control box and both white and orange wires (Figure 9, Items 2 and 4) of master switch (Figure 9, Item 3).

CONDITION/INDICATION

Is there continuity between ground stud and either white or orange wires of master switch?

DECISION

YES – Proceed to Malfunction Short to ground in master switch wiring.

NO – Proceed to Step 48.

MALFUNCTION

Short to ground in master switch wiring.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Replace shorted orange or white wire (WP 0069).
d. Reset 50A circuit breaker.
e. Replace master switch if 50A circuit breaker trips again (WP 0068).
f. Close EMI control box cover, and install four screws (Figure 9, Item 5) and washers (Figure 9, Item 6) in EMI control box.
g. Connect power source to TRM, and start power source.
h. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
i. Return to step 1 and repeat all troubleshooting steps if condition still exists.
j. Continue fueling operations if condition is fixed.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

STEP

48. Check to see if 2A circuit breaker is tripped.

CONDITION/INDICATION

Is 2A circuit breaker circuit functioning properly, and is relay closing when powered?

DECISION

YES – Proceed to Step 49.

NO – Continue fueling operations. Return to step 1 and repeat all troubleshooting steps if condition still exists.

STEP

49. Check for continuity between ground stud (Figure 9, Item 1) and red wire (Figure 9, Item 7) of relay.

CONDITION/INDICATION

Is there continuity between contact points?

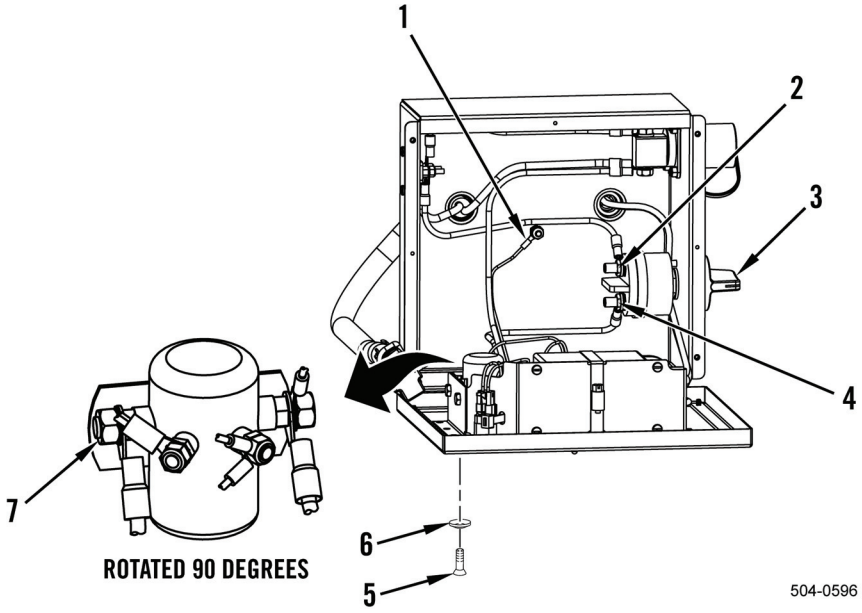


Figure 9. Test Points.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

DECISION

YES – Proceed to Malfunction Short to ground in red wire of relay.

NO – Proceed to Step 50.

MALFUNCTION

Short to ground in red wire of relay.

ACTION

a. Shut down power source.

b. Disconnect power source from TRM.

c. Replace shorted red wire (WP 0068).

d. Reset 50A circuit breaker.

e. Continue fueling operation.

f. If condition still exists, return to step 1 and repeat all troubleshooting steps.

STEP

50. Check for continuity between ground stud (Figure 10, Item 1) and (+) input and output terminals (Figure 10, Items 2 and 4) of EMI filter (Figure 10, Item 3).

CONDITION/INDICATION

Is there continuity between ground and either input or output terminals?

DECISION

YES – Proceed to Malfunction EMI Filter Shorted to Ground.

NO – Proceed to Step 51.

MALFUNCTION

EMI Filter Shorted to Ground.

ACTION

a. Shut down power source.

b. Disconnect power source from TRM.

c. Replace EMI filter (WP 0068).

d. Reset 50A circuit breaker.

e. Continue fueling operation.

f. If condition still exists, return to step 1 and repeat all troubleshooting steps.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

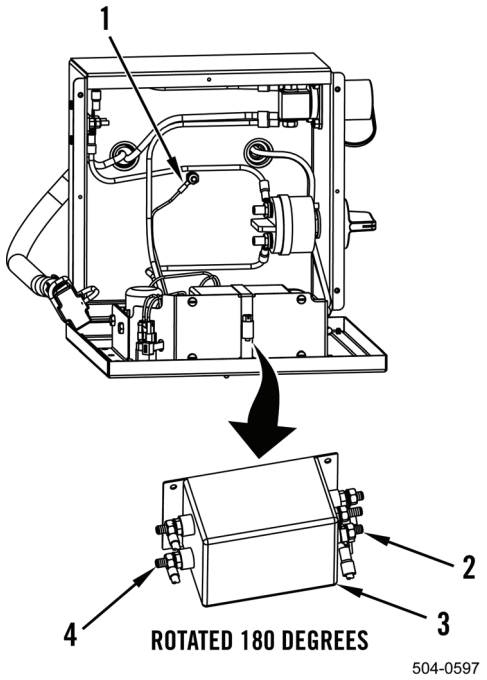


Figure 10. EMI Filter Test Points.

STEP

CAUTION

The locking hardware removed in WP 0070 can be retained until troubleshooting is complete so that it can be reused to perform tests. Discard any used locking hardware once troubleshooting is complete. Failure to comply may result in damage to equipment.

51. Remove capacitor from motor (WP 0070).

52. Check motor cable assembly leads for continuity between motor frame and either motor cable assembly lead.

CONDITION/INDICATION

Is there continuity between motor frame and leads?

DECISION

YES – Proceed to Malfunction Short in motor cable assembly.

NO – Proceed to Step 53.

MALFUNCTION

Short in motor cable assembly.

ACTION

a. Shut down power source.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

b. Disconnect power source from TRM.

c. Replace motor cable assembly (WP 0069).

d. Reset 50A circuit breaker.

e. Continue fueling operation.

f. If condition still exists, return to step 1 and repeat all troubleshooting steps.

STEP

CAUTION

The steps that follow will be performed so the TRM can be tested without the capacitor in the motor circuit. Any locking hardware can be temporarily reused to perform the test below. Do not reuse locking hardware during final installation of capacitor (WP 0070). Failure to comply may result in damage to equipment.

53. Install two nuts (Figure 11, Item 8), two locknuts (Figure 11, Item 12), and two lockwashers (Figure 11, Item 9) onto two bolts (Figure 11, Item 5), conduit wires (Figure 11, Item 7), and motor wires (Figure 11, Item 11).
54. Position four wire boots (Figure 11, Items 6 and 10) over wires (Figure 11, Items 7 and 11).
55. Connect power source to TRM, and start power source.
56. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

CONDITION/INDICATION

Does motor function properly?

DECISION

YES – Install new capacitor (WP 0070) and continue fueling operations. Return to step 1 and repeat all troubleshooting steps if condition still exists.

NO – Proceed to Step 57.

STEP

57. Remove two screws (Figure 11, Item 3) and cover (Figure 11, Item 4) from conduit box (Figure 11, Item 2) on motor (Figure 11, Item 1).
58. Pull bundle of wires gently from conduit box (Figure 11, Item 2).
59. Slide four wire boots (Figure 11, Items 6 and 10) back on wires (Figure 11, Items 7 and 11).

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

60. Remove two locknuts (Figure 11, Item 12), two nuts (Figure 11, Item 8), and two lockwashers (Figure 11, Item 9) from two bolts (Figure 11, Item 5), conduit wires (Figure 11, Item 7), and motor wires (Figure 11, Item 11). Discard locknuts and lockwashers.

61. Install capacitor into motor (WP 0070).

62. Check for continuity between ground and each motor terminal, and check for continuity between motor terminals.

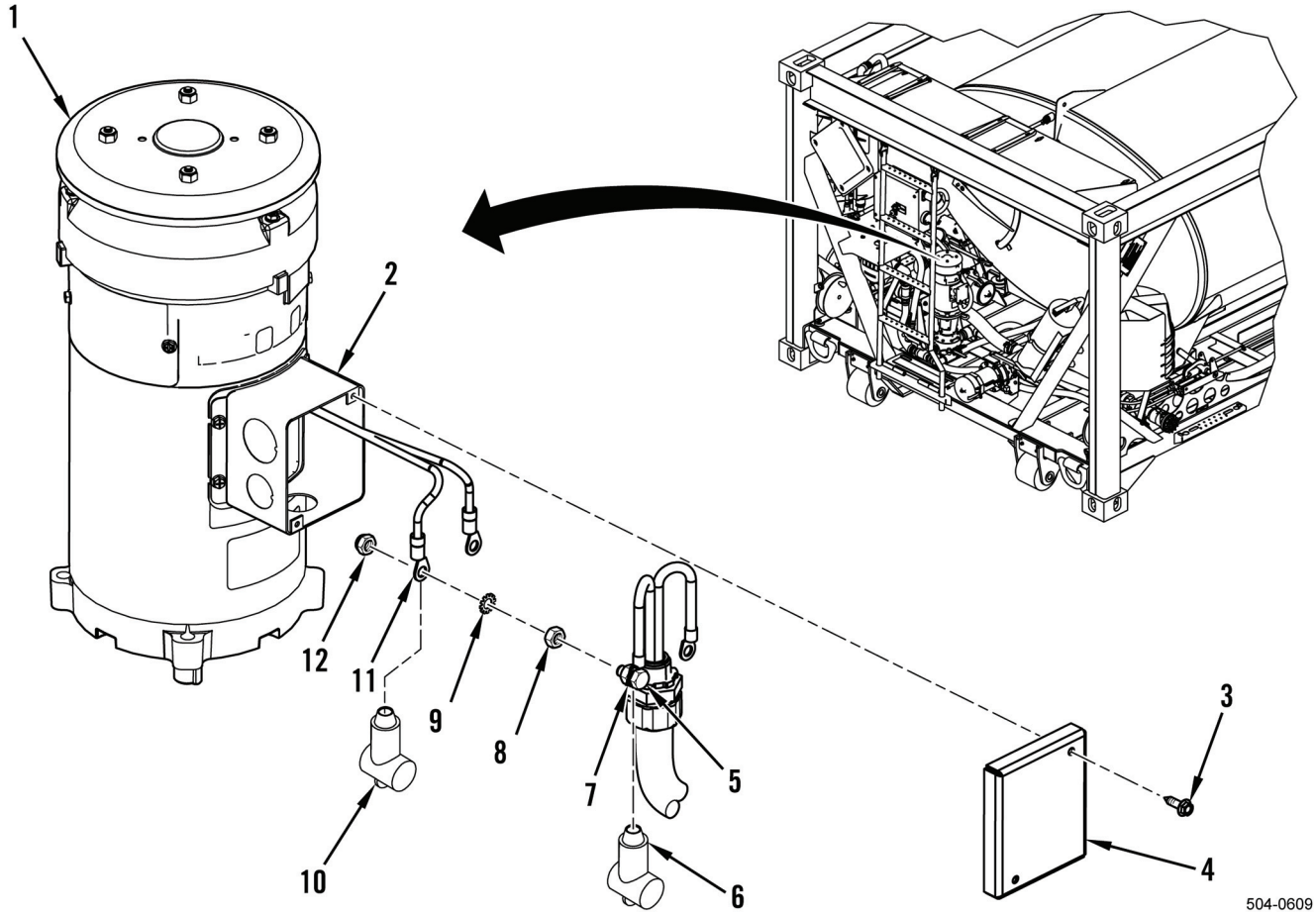


Figure 11. Motor Test.

CONDITION/INDICATION

Is there continuity to ground or 3 - 7 Ohms between motor terminals?

DECISION

YES – Continue fueling operations. Return to step 1 and repeat all troubleshooting steps if condition still exists.

NO – Proceed to Malfunction Fault in motor or leads.

FUEL PUMP ASSEMBLY DOES NOT RUN WHEN USING ON/OFF EMI CONTROL BOX SWITCH – CONTINUED

MALFUNCTION

Fault in motor or leads.

ACTION

a. Shut down power source.
b. Disconnect power source from TRM.
c. Replace motor (WP 0058).
d. Reset 50A circuit breaker.
e. Verify condition no longer exists.
f. If condition still exists, return to step 1 and repeat all troubleshooting steps.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL PUMP ASSEMBLY MOTOR STALLS WHEN NOZZLE IS CLOSED TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

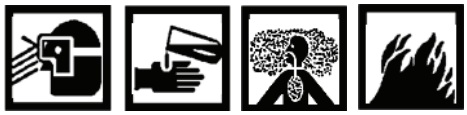
References

WP 0032
WP 0063

Equipment Condition

TRM set on level ground
TRM prepared for retail use (TM 10-4930-370-10)

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

FUEL PUMP ASSEMBLY MOTOR STALLS WHEN NOZZLE IS CLOSED

STEP

Check to see if fuel pump motor stalls during fueling operations.

CONDITION/INDICATION

Is fuel pump motor stalling?

DECISION

YES – Proceed to Malfunction Faulty air eliminator.

NO – Continue fueling operation.

MALFUNCTION

Faulty air eliminator

ACTION

a. Remove and replace air eliminator (WP 0063).
b. Verify condition is fixed by continuing retail operations (TM 10-4930-370-10).
c. Troubleshoot fuel pump assembly (WP 0032) if condition is not fixed.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL DOES NOT FLOW INTO TANK TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

References

WP 0097
WP 0100

Equipment Condition

TRM set on level ground

WARNING

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TROUBLESHOOTING PROCEDURE

FUEL DOES NOT FLOW INTO TANK

SYMPTOM

Fuel does not flow into tank.

MALFUNCTION

Inlet piping assembly butterfly valve defective.

CORRECTIVE ACTION

Replace inlet piping assembly butterfly valve (WP 0097).

MALFUNCTION

V2 valve defective.

CORRECTIVE ACTION

Replace V2 valve (WP 0100).

MALFUNCTION

V2 valve main piston is jammed.

CORRECTIVE ACTION

Replace V2 valve (WP 0100).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

STATIC SPARK NOTED AT FUEL DISPENSING NOZZLE

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Equipment Condition

TRM set on level ground

Personnel Required

Two

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

STATIC SPARK NOTED AT FUEL DISPENSING NOZZLE

SYMPTOM

Static spark noted at fuel dispensing nozzle.

MALFUNCTION

Fuel dispensing nozzle or other equipment not properly grounded.

CORRECTIVE ACTION

1. Stop all fueling operations.
2. Check fuel dispensing nozzle for proper ground.
3. Check all bonding and grounding connections on equipment for proper ground.
4. Repair or replace damaged or defective equipment.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V2 VALVE WILL NOT AUTOMATICALLY OPEN OR CLOSE

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

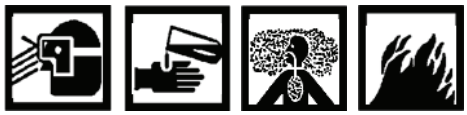
References

WP 0085
WP 0100

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

V2 VALVE WILL NOT AUTOMATICALLY OPEN

SYMPTOM

V2 valve will not automatically open.

MALFUNCTION

V6 valve open.

CORRECTIVE ACTION

Close V6 valve.

MALFUNCTION

Damaged or defective V2 valve.

CORRECTIVE ACTION

Replace damaged or defective V2 valve (WP 0100).

V2 VALVE WILL NOT AUTOMATICALLY CLOSE

SYMPTOM

V2 valve will not automatically close.

MALFUNCTION

Damaged or defective liquid level switch.

CORRECTIVE ACTION

Replace damaged or defective liquid level switch (WP 0085).

MALFUNCTION

Damaged or defective V2 valve.

CORRECTIVE ACTION

Replace damaged or defective V2 valve (WP 0100).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

LOW FLOW RATE
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0032
WP 0060
WP 0065

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

LOW FLOW RATE

STEP

1. Operate TRM (TM 10-4930-370-10).

NOTE

See TM 10-4930-370-10 for location of differential pressure gauge.

2. Observe differential pressure gauge.

CONDITION/INDICATION

Is differential pressure gauge indicator in the red area?

DECISION

YES – Proceed to Malfunction Contaminated canister and coalescer.

NO – Proceed to step 3.

MALFUNCTION

Contaminated canister and coalescer.

ACTION

a. Remove and replace filter/separator element (canister and coalescer) (WP 0065).

LOW FLOW RATE – CONTINUED

b. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).

c. Continue fueling operations if condition is fixed.

STEP

NOTE

There are no field troubleshooting steps for a flow meter that is not reading correctly. If TRM is dispensing more or less fuel than what meter reading shows, the defective flow meter will need to be removed and replaced (WP 0060).

3. Record flow meter gallons for a period of 5 minutes during operation.

CONDITION/INDICATION

Does TRM dispense less than 100 gallons in 5 minutes?

DECISION

YES – Proceed to Malfunction Fuel pump assembly fault.

NO – Continue fueling operation, and verify the problem is resolved.

MALFUNCTION

Fuel pump assembly fault.

ACTION

Troubleshoot fuel pump assembly (WP 0032).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TANK WILL NOT FILL OR STOPS FILLING BEFORE REACHING 2,500 GALLON CAPACITY TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

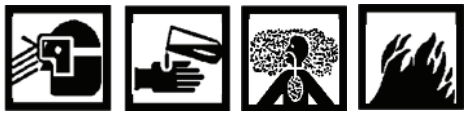
References

WP 0085

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

TANK WILL NOT FILL OR STOPS FILLING BEFORE REACHING 2,500 GALLON CAPACITY

SYMPTOM

Tank will not fill or stops filling before reaching 2,500 gallon capacity.

MALFUNCTION

V6 valve open.

CORRECTIVE ACTION

Close V6 valve.

MALFUNCTION

Loose connections at liquid level switch.

CORRECTIVE ACTION

1. Tighten liquid level switch connections (WP 0085).
2. If condition still exists, replace liquid level switch (WP 0085).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

REMOTE CONTROL SWITCH DOES NOT FUNCTION CORRECTLY
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Multimeter (WP 0182, Item 10)
Fire extinguisher (TM 10-4930-370-10)

References

WP 0006
WP 0068
WP 0092

Personnel Required

Two

Equipment Condition

TRM set on level ground
TRM prepared for retail use (TM 10-4930-370-10)

WARNING

There are Direct Current (DC) voltages at electrical connections. Only use test probes of multimeter to touch live connections. Do not short any positive with ground/negative. Failure to comply may result in injury or death to personnel or damage to equipment.

NOTE

- EMI control box has two circuit breakers: 2A on the front cover and 50A inside the box.
- The procedure that follows assumes the 40 ft (12.2 m) remote control cable is connected, fuel pump assembly control toggle switch is set to REMOTE, and remote control switch is set to ON.
- Identify controls and indicators IAW TM 10-4930-370-10.

TROUBLESHOOTING PROCEDURE

REMOTE CONTROL SWITCH DOES NOT FUNCTION CORRECTLY

STEP

1. Shut down power source.
2. Turn master switch (Figure 1, Item 3) on EMI control box (Figure 1, Item 1) to OFF position.
3. Disconnect power source from TRM (TM 10-4930-370-10).
4. Set fuel pump assembly control toggle switch (Figure 1, Item 2) to OFF.
5. Disconnect 40 ft (12.2 m) remote control cable (Figure 1, Item 5) from EMI control box receptacle (Figure 1, Item 4) and remote control switch (Figure 1, Item 6).

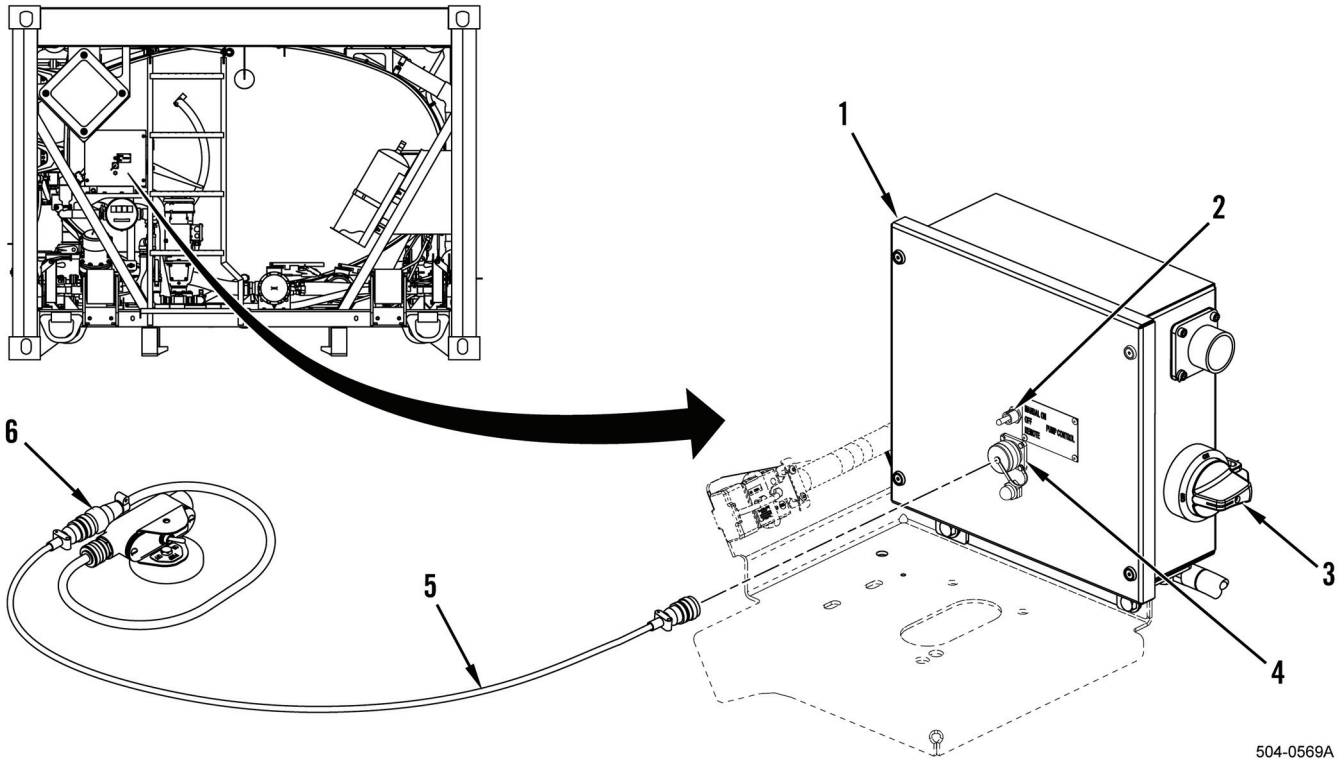


Figure 1. 2A Circuit Breaker.

CAUTION

- To prevent damage to low-level devices (switches and relays), do not test for continuity with multimeter on RX1 scale when testing through switches and relays. Failure to comply will cause damage to low-level devices.
- Do not force probes into contactor pins/sockets. Failure to comply will cause damage to connector.

6. Use Component Location/Connector End Views (WP 0006) and a multimeter to test continuity, and check 40 ft (12.2 m) remote control cable for continuity (open circuit) between each set of pins: A to A, B to B, and C to C.

REMOTE CONTROL SWITCH DOES NOT FUNCTION CORRECTLY – CONTINUED

CONDITION/INDICATION

Is there continuity between each set of pins?

DECISION

YES – Proceed to step 7.

NO – Proceed to Malfunction Open in 40 ft (12.2 m) remote control cable.

MALFUNCTION

Open in 40 ft (12.2 m) remote control cable.

ACTION

a. Discard 40 ft (12.2 m) remote control cable and replace with new cable.

b. Connect 40 ft (12.2 m) remote control cable to remote control switch and EMI control box receptacle.

c. Connect power source to TRM, and start power source.

d. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

e. Return to step 1 and repeat all troubleshooting steps if condition still exists.

f. Continue fueling operations if condition is fixed.

STEP

7. Use Component Location/Connector End Views (WP 0006) and a multimeter to test continuity, and check 40 ft (12.2 m) remote control cable for continuity (shorted wires) across each set of pins: A to B, A to C, and B to C.

CONDITION/INDICATION

Is there continuity across each set of pins?

DECISION

YES – Proceed to Malfunction Short in 40 ft (12.2 m) remote control cable.

NO – Proceed to step 8.

MALFUNCTION

Short in 40 ft (12.2 m) remote control cable.

ACTION

a. Discard 40 ft (12.2 m) remote control cable and replace with new cable.

b. Connect 40 ft (12.2 m) remote control cable to remote control switch and EMI control box receptacle.

c. Connect power source to TRM, and start power source.

d. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

REMOTE CONTROL SWITCH DOES NOT FUNCTION CORRECTLY – CONTINUED

e. Return to step 1 and repeat all troubleshooting steps if condition still exists.

f. Continue fueling operations if condition is fixed.

STEP

8. Remove toggle switch from remote control switch box assembly in order to access wires (WP 0092).

9. Use Component Location/Connector End Views (WP 0006) and a multimeter to test continuity, and check remote control switch box assembly for continuity between each set of sockets and pins: A to A, B to B, and C to C.

CONDITION/INDICATION

Is there continuity across each set of pins?

DECISION

YES – Proceed to step 10.

NO – Proceed to Malfunction Open in remote control switch box assembly.

MALFUNCTION

Open in remote control switch box assembly.

ACTION

a. Replace remote control switch box assembly cable.

b. Install toggle switch on remote control switch box assembly (WP 0092).

c. Connect 40 ft (12.2 m) remote control cable to remote control switch and EMI control box receptacle.

d. Connect power source to TRM, and start power source.

e. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

f. Return to step 1 and repeat all troubleshooting steps if condition still exists.

g. Continue fueling operations if condition is fixed.

STEP

10. Use Component Location/Connector End Views (WP 0006) and a multimeter to test continuity, and check remote control switch box assembly for continuity across each set of sockets/pins: A to B, A to C, and B to C.

CONDITION/INDICATION

Is there continuity across each set of sockets/pins?

DECISION

YES – Proceed to Malfunction Short in remote control switch box assembly.

NO – Proceed to step 11.

REMOTE CONTROL SWITCH DOES NOT FUNCTION CORRECTLY – CONTINUED

MALFUNCTION

Short in remote control switch box assembly.

ACTION

a. Replace remote control switch box assembly cable.
b. Install toggle switch on remote control switch box assembly (WP 0092).
c. Connect 40 ft (12.2 m) remote control cable to remote control switch and EMI control box receptacle.
d. Connect power source to TRM, and start power source.
e. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
f. Return to step 1 and repeat all troubleshooting steps if condition still exists.
g. Continue fueling operations if condition is fixed.

STEP

11. Put remote ON/OFF toggle switch in ON and OFF positions and check for continuity across two terminals.

CONDITION/INDICATION

Is there continuity when toggle switch is ON and no continuity when toggle switch is OFF?

DECISION

YES – Proceed to step 12.

NO – Proceed to Malfunction Faulty toggle switch.

MALFUNCTION

Faulty toggle switch.

ACTION

a. Replace toggle switch (WP 0092).
b. Connect 40 ft (12.2 m) remote control cable to remote control switch and EMI control box receptacle.
c. Connect power source to TRM, and start power source.
d. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.
e. Return to step 1 and repeat all troubleshooting steps if condition still exists.
f. Continue fueling operations if condition is fixed.

REMOTE CONTROL SWITCH DOES NOT FUNCTION CORRECTLY – CONTINUED

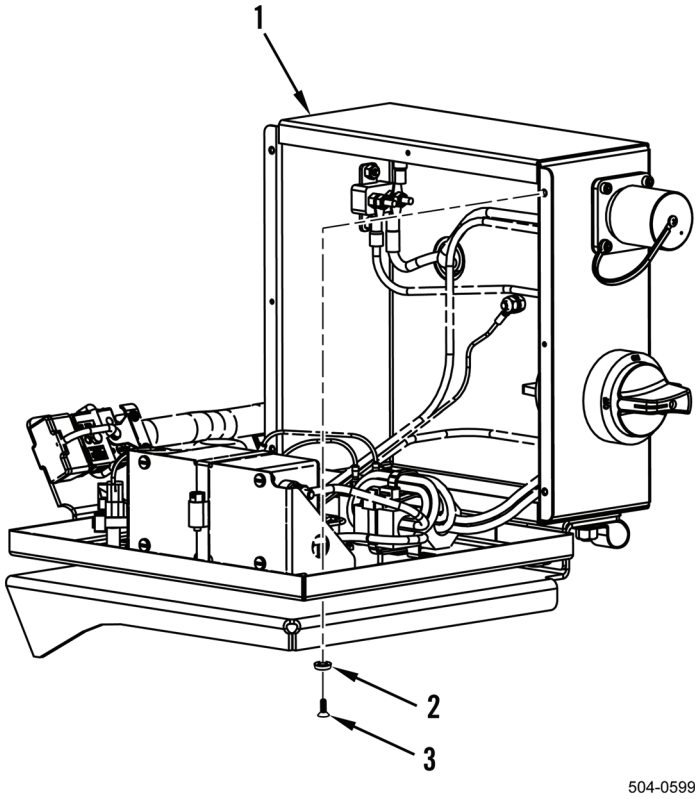


Figure 2. EMI Control Box Cover.

STEP

12. Install toggle switch on remote control switch box cable (WP 0092).
13. Remove four screws (Figure 2, Item 3) and washers (Figure 2, Item 2) from EMI control box (Figure 2, Item 1), and open cover.
14. Remove two screws (Figure 3, Item 2), black wire (Figure 3, Item 4), and two brown wires (Figure 3, Items 1 and 3), from ON/OFF/REMOTE toggle switch (Figure 3, Item 5).
15. Use Component Location/Connector End Views (WP 0006) and a multimeter to test continuity (open circuit), and check receptacle for continuity (open circuit) between each set of contacts: A to A, B to B, and C to C.

CONDITION/INDICATION

Is there continuity between each set of contacts?

DECISION

YES – Proceed to step 16. NO – Proceed to Malfunction Open or short in receptacle.

STEP

16. Use Component Location/Connector End Views (WP 0006) and a multimeter to test continuity, and check receptacle for continuity (shorted wires) across each set of contacts: A to B, A to C, and B to C.

REMOTE CONTROL SWITCH DOES NOT FUNCTION CORRECTLY – CONTINUED

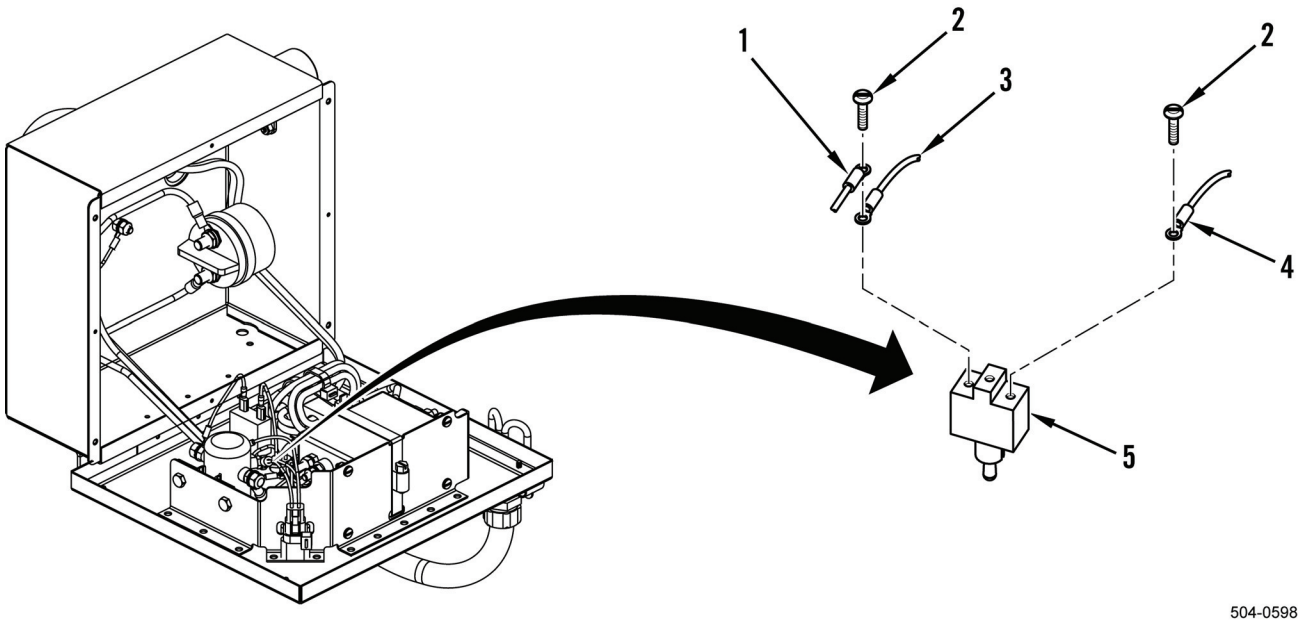


Figure 3. Wires on Toggle Switch.

CONDITION/INDICATION

Is there continuity across each set of contacts?

DECISION

YES – Proceed to Malfunction Open or short in receptacle.

NO – Proceed to step 17.

MALFUNCTION

Open or short in receptacle.

ACTION

a. Remove and replace EMI control box receptacle (WP 0068).

b. Close EMI control box (Figure 2, Item 1) cover, and install four screws (Figure 2, Item 3) and washers (Figure 2, Item 2) in EMI control box. Connect power source to TRM, and start power source.

c. Connect 40 ft (12.2 m) remote control cable to remote control switch and EMI control box receptacle.

d. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

e. Return to step 1 and repeat all troubleshooting steps if condition still exists.

f. Continue fueling operations if condition is fixed.

STEP

17. Install black wire (Figure 3, Item 4) and two brown wires (Figure 3, Items 1 and 3) onto ON/OFF/REMOTE toggle switch (Figure 3, Item 5) with two screws (Figure 3, Item 2).

18. Close EMI control box (Figure 2, Item 1) cover, and install four screws (Figure 2, Item 3) and washers (Figure 2, Item 2) into EMI control box.

REMOTE CONTROL SWITCH DOES NOT FUNCTION CORRECTLY – CONTINUED

19. Connect 40 ft (12.2 m) remote control cable to remote control switch and EMI control box receptacle.
20. Connect power source to TRM, and start power source.
21. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

CONDITION/INDICATION

Does condition still exist?

DECISION

YES – Return to step 1 and repeat all troubleshooting steps if condition still exists.	NO – Continue fueling operations.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V1 VALVE WILL NOT MANUALLY OPEN
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0101
WP 0105

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

V1 VALVE WILL NOT MANUALLY OPEN

SYMPTOM

V1 valve will not manually open.

MALFUNCTION

Loose V1 valve cable connection.

CORRECTIVE ACTION

Check cable connection and tighten.

MALFUNCTION

Damaged or defective cable.

CORRECTIVE ACTION

Replace damaged or defective V1 valve cable (WP 0105).

MALFUNCTION

Damaged or defective V1 valve.

CORRECTIVE ACTION

Replace damaged or defective V1 valve (WP 0101).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V2 VALVE WILL NOT MANUALLY OPEN

TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

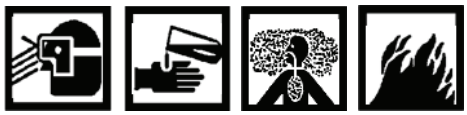
References

WP 0100
WP 0106

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

V2 VALVE WILL NOT MANUALLY OPEN

SYMPTOM

V2 valve will not manually open.

MALFUNCTION

Vent valve transport hardware is installed.

CORRECTIVE ACTION

Remove vent valve transport hardware (TM 10-4930-370-10).

MALFUNCTION

Loose V2 valve cable connection.

CORRECTIVE ACTION

Check cable connection and tighten.

MALFUNCTION

Damaged or defective cable.

CORRECTIVE ACTION

Replace damaged or defective V2 valve cable (WP 0106).

TROUBLESHOOTING PROCEDURE – CONTINUED

V2 VALVE WILL NOT MANUALLY OPEN – CONTINUED

MALFUNCTION

Damaged or defective V2 valve.

CORRECTIVE ACTION

Replace damaged or defective V2 valve (WP 0100).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

VENT VALVE DOES NOT OPEN WHEN V2 VALVE IS OPENED
TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Personnel Required

Two

References

WP 0081

Equipment Condition

TRM set on level ground

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

VENT VALVE DOES NOT OPEN WHEN V2 VALVE IS OPENED

SYMPTOM

Vent valve does not open when V2 valve is opened.

MALFUNCTION

Damaged or defective vent valve push rod.

CORRECTIVE ACTION

Replace damaged or defective vent valve push rod (WP 0081).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

PORT B VB1 OR PORT C VB2 VACUUM BREAKER LEAKS FUEL TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

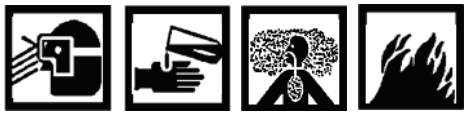
References

WP 0051
WP 0094

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

PORT B VB1 OR PORT C VB2 VACUUM BREAKER LEAKS FUEL

SYMPTOM

Port B VB1 or Port C VB2 vacuum breaker leaks fuel.

MALFUNCTION

Vacuum breaker bleeder valve (VB1 or VB2) stuck in the open position.

CORRECTIVE ACTION

Clean vacuum breaker bleeder valve and push in to reset valve.

MALFUNCTION

Deteriorated sealant.

CORRECTIVE ACTION

Replace sealant on vacuum breaker bleeder valve VB1 (WP 0094) or VB2 (WP 0051).

MALFUNCTION

Damaged or defective breaker bleeder valve (VB1 or VB2).

CORRECTIVE ACTION

Replace damaged or defective vacuum breaker bleeder valve VB1 (WP 0094) or VB2 (WP 0051).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FILTER/SEPARATOR DIFFERENTIAL PRESSURE GAUGE INDICATOR IS IN RED AREA TROUBLESHOOTING PROCEDURE

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

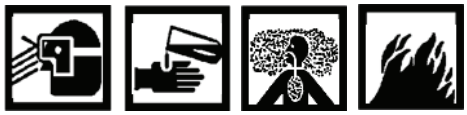
References

WP 0065

Equipment Condition

TRM set on level ground

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

TROUBLESHOOTING PROCEDURE

FILTER/SEPARATOR DIFFERENTIAL PRESSURE GAUGE INDICATOR IS IN RED AREA

STEP

1. Recirculate fuel (TM 10-4930-370-10).

NOTE

See TM 10-4930-370-10 for location of differential pressure gauge.

2. Observe differential pressure gauge.

CONDITION/INDICATION

Is differential pressure gauge indicator in the red area?

DECISION

YES – Proceed to Malfunction Contaminated canister and coalescer.

NO – Continue fueling operation.

MALFUNCTION

Contaminated canister and coalescer.

ACTION

a. Remove and replace filter/separator element (canister and coalescer) (WP 0065).

b. Connect power source to TRM, and start power source.

FILTER/SEPARATOR DIFFERENTIAL PRESSURE GAUGE INDICATOR IS IN RED AREA – CONTINUED

c. Make sure master switch is in ON position and make sure fuel pump assembly control toggle switch is set to ON position.

d. Verify condition is fixed by recirculating fuel (TM 10-4930-370-10).

e. Continue fueling operations if condition is fixed.

END OF TASK

END OF WORK PACKAGE

CHAPTER 3

FIELD MAINTENANCE INSTRUCTIONS

FIELD MAINTENANCE

SERVICE UPON RECEIPT

General, Emplacement, Unpacking, Check Unpacked Equipment, Installation Instructions, Assemble Equipment, Preliminary Servicing of Equipment

INITIAL SETUP

Tools and Special Tools	References
Tool kit, general mechanic's (WP 0182, Item 12)	DA PAM 750-8 TM 10-4930-370-10 WP 0047

GENERAL

1. The following paragraphs contain the procedures for unpacking and general checking of the Tank Rack Module (TRM).
2. Inspect the equipment for damage incurred during shipment.
3. Check equipment against the packing slip to ensure that the shipment is complete. Report all discrepancies in accordance with applicable service instructions in DA PAM 750-8.

EMPLACEMENT

See TM 10-4930-370-10 for emplacement instructions.

UNPACKING

Unpack TRM; refer to shipping documents.

CHECK UNPACKED EQUIPMENT

Inspect equipment per Table 1.

Table 1. Equipment Inspection.

COMPONENT	ACCEPTABLE	REPAIRABLE	NONREPARABLE
TRM	Free from major damage.	Any damage that does not affect the serviceability of the TRM.	Major damage that affects the serviceability of the TRM.
Couplings	Minor rust or corrosion that would not impair serviceability of the couplings.	Minor rust or corrosion that can be removed without affecting the serviceability of the couplings.	Rust, damage, or corrosion that affects serviceability of the couplings.
Valve Assemblies	Minor rust or corrosion that would not impair serviceability or the valve assemblies.	Minor rust or corrosion that can be removed without affecting the serviceability of the valve assemblies.	Rust, damage, or corrosion that affects serviceability of the valve assemblies.
Nozzles	Free from major damage.	Minor rust or corrosion that can be removed without affecting the serviceability of the nozzles.	Rust, damage, or corrosion that affects serviceability of the nozzles.
Hoses	Free of rips and tears.	Small pinch-like holes.	Major rips or tears.

INSTALLATION INSTRUCTIONS

The TRM can be assembled and set up for operation with no special tools or test equipment.

ASSEMBLE EQUIPMENT

1. Refer to the operator instructions in TM 10-4930-370-10.
2. Place all components of the TRM into position.

PRELIMINARY SERVICING OF EQUIPMENT

Refer to the PMCS procedures in WP 0047 of this manual for instructions on lubricating requirements prior to operating equipment.

END OF WORK PACKAGE

FIELD MAINTENANCE

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INTRODUCTION

General, Leakage Definitions, Inspection, Lubrication Service Intervals – Normal Conditions, Lubrication Service Intervals – Unusual Conditions, Cleaning and Lubrication

GENERAL

1. Systematic, periodic Preventive Maintenance Checks and Services (PMCS) are essential to ensure that the TRM is ready for operation at all times. The purpose of a preventive maintenance program is to discover and correct defects and deficiencies before they can cause serious damage or complete failure of the equipment. Any effective preventive maintenance program must begin with the indoctrination of Operators to notify Field Maintenance of all unusual conditions noted during daily checks or actual operation. All defects and deficiencies discovered during maintenance inspections must be recorded, together with corrective action taken, on DA Form 2404, Equipment Inspection and Maintenance Worksheet, or DA Form 5988-E, Equipment Maintenance and Inspection Worksheet. Pay attention to WARNING and CAUTION statements. A WARNING means someone could be injured or killed. A CAUTION means equipment could get damaged.
2. A schedule for Field Maintenance inspection and service should be established immediately after initial operation of the TRM. When operating under unusual conditions, such as a very dusty or sandy environment, it may be necessary to reduce the interval to monthly or even less if conditions are extreme.
3. The TRM has very few requirements for Field Maintenance PMCS. However, the PLS Trailer, PLS and HEMTTs have Field Maintenance PMCS contained in their own separate manuals. Refer to the applicable technical manual for these items for proper Field Maintenance PMCS procedures and perform those procedures.
4. If you find something wrong when performing PMCS, fix it, if you can, using troubleshooting procedures and/or maintenance procedures.
5. The right-hand column of the PMCS table lists conditions that make the equipment not fully mission capable. Use DA Form 5988-E or DA Form 2404 to report items that have not been fixed. For further information on how to use these forms, see DA PAM 750-8.
    a. Perform *Quarterly* PMCS once every 3 months.
    b. Perform *Semiannual* PMCS once every 6 months.
    c. Perform *Annual* PMCS once each year.
    d. Perform *Triennial* PMCS once every 3 years.

LEAKAGE DEFINITIONS

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

CAUTION

Equipment operation is allowed with Class I or II leakage. Class III leaks must be reported immediately to Field Maintenance. Failure to comply may cause damage to equipment.

1. When operating with Class I or II leaks, continue to check drip pans and ensure the leak is not a Class III leak.
2. If there is a Class III leak, shut down operation immediately, and report it IAW local SOP.
3. It is important to understand how fluid leakage affects the status of the TRM. Following are definitions of the leakage classes the Operators and Mechanics need to become familiar with in order to determine the condition of the leak. When in doubt, always consult your supervisor.
4. Leakage Classifications for PMCS:
   a. CLASS I - Seepage of fluid (as indicated by wetness or discoloration) not great enough to form drops.
   b. CLASS II - Leakage of fluid great enough to form drops but not enough to cause drops to drip from Item being inspected.
   c. CLASS III - Leakage of fluid great enough to form drops that fall from the Item being inspected.

INSPECTION

Look for signs of a problem or trouble. You can feel, smell, hear, or see many problems. Be alert when using the equipment.

Inspect to ensure items are in good condition. Ensure that they are properly lubricated, correctly assembled, stowed, secured, and are not excessively worn, leaking, or corroded. Correct any problems found.

The following are common items to check throughout the equipment:

1. Bolts, clamps, nuts, and screws: Tighten loose hardware and look for chipped paint, bare metal, rust, or corrosion around bolts, screw heads, and nuts.
2. Welds: Many Items on the equipment are welded. To check for defective welds, look for chipped paint, rust, corrosion, or gaps.
3. Electrical wires, connectors, and harnesses: Tighten loose connectors. Look for cracked or broken insulation, bare wires, and broken connectors. If any of these conditions exist, repair them.
4. Hoses and fluid lines: Look for wear, damage, and leaks. Ensure that clamps and fittings are tight. A wet spot indicates leakage. A stain near a fitting or connector can also indicate leakage. If a leak is discovered, repair it.

LUBRICATION SERVICE INTERVALS – NORMAL CONDITIONS

For safer, more trouble-free operations, make sure that your equipment is serviced as scheduled.

LUBRICATION SERVICE INTERVALS – UNUSUAL CONDITIONS

Your equipment will require extra service and care when you operate under unusual conditions. High or low temperatures and/or long periods of hard use or continued use in sand, water, mud, or snow will break down the lubricant.

CLEANING AND LUBRICATION

WARNING

Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles, Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

The following cleaning and lubrication procedures can aid in preventing equipment problems:

CAUTION

Follow all cleaning and lubrication instructions carefully. Failure to comply may result in damage to equipment.

1. Thoroughly wash all equipment exposed to salt and spray with clean, fresh water.
2. Use solvent cleaning compound, MIL-PRF-680 or equivalent, to clean parts that will be lubricated. Do not use fluid or semi-fluid lubricant on coated surfaces. Wipe surface dry before lubricating.
3. Clean grease fittings before lubrication.
4. Lubricate all equipment before equipment storage.
5. Always use the PMCS lubrication instructions as a guide.
6. Never use too much lubricant.
7. Never use the wrong type or grade of lubricant.
8. Lubricate more during constant use and less during inactive periods.
9. Use the correct grade of lubricant for seasonal temperature expected.

END OF WORK PACKAGE

FIELD MAINTENANCE

PREVENTIVE MAINTENANCE CHECKS AND SERVICES (PMCS) INCLUDING LUBRICATION INSTRUCTIONS

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Apron, utility (WP 0181, Item 1)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Crowfoot attachment, socket wrench (WP 0182, Item 3)
Multimeter (WP 0182, Item 10)
Wrench, torque, 600 lb-ft (WP 0182, Item 21)
Lubricating gun, hand (WP 0182, Item 9)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Cloth, cleaning (WP 0181, Item 4)
Grease, automotive and artillery, GAA (WP 0181, Item 8)
Grease, general purpose (WP 0181, Item 10)
Oil, lubricating, OE/HDO-10 (WP 0181, Item 12)
Oil, lubricating, OEA-30 Arctic (WP 0181, Item 13)

Personnel Required

Two

References

WP 0002
WP 0048
WP 0057
WP 0093
WP 0110

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)

Table 1. Preventive Maintenance Checks and Services (PMCS).

ITEM NO.	INTERVAL	LOCATION ITEM TO CHECK/ SERVICE	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
			WARNING • Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. • Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam. • Wet metal surfaces are slippery. Use caution when climbing on tank. • Ground self and equipment before opening manhole cover to prevent explosion caused by electrostatic charge. • Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly. • Eye protection is required when opening manhole cover. • Failure to comply may result in injury or death to personnel. **NOTE** Refer to TM 10-4930-370-10 and WP 0002 for location of components.	
1	Quarterly	Fuel Pump	Apply grease to fuel pump IAW Lubricate Fuel Pump task in this WP.	
2	Semi-annual	Static Ground Reel	Check the continuity of static ground cables from each clip to: 1. Tank 2. Frame	No continuity between cable and frame.
3	Semi-annual	Fuel Pump Assembly	Check fuel strainer for damage and debris (WP 0057).	Fuel strainer is damaged or cannot be cleaned.

Table 1. Preventive Maintenance Checks and Services (PMCS) - Continued.

ITEM NO.	INTERVAL	LOCATION ITEM TO CHECK/ SERVICE	PROCEDURE	NOT FULLY MISSION CAPABLE IF:
			NOTE All annual and triennial inspections require the TRM to be mounted on a PLS trailer (TM 10-4930-370-10).	
4	Annual	Tank	Visually inspect interior of tank for accumulation of debris or sludge. Refer to TM 10-4930-370-10 for tank cleaning procedures.	
5	Annual	Isolation Mounts	a. Inspect isolation mounts (Figure 1) for signs of damage or deterioration. b. Torque nuts of isolation mounts (Figure 1) to 400 lb-ft (542 Nm).	Isolation mounts are damaged or deteriorated.
6	Annual	Compression Springs	Check compression springs (Figure 1) for loose or missing hardware (WP 0110).	Compression springs have loose or missing hardware.

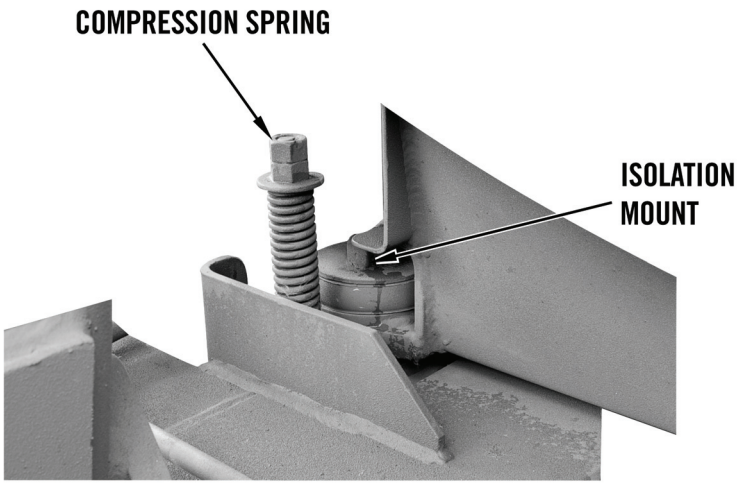


Figure 1. Compression Spring and Isolation Mount.

7	Triennial	Discharge Piping Assembly	Inspect and replace 4 in. coupling assemblies and gaskets (WP 0048).	
8	Triennial	Bottom Load Piping Assembly	Inspect and replace coupling assemblies and gaskets (WP 0093).	

LUBRICATION INSTRUCTIONS

Lubrication Points

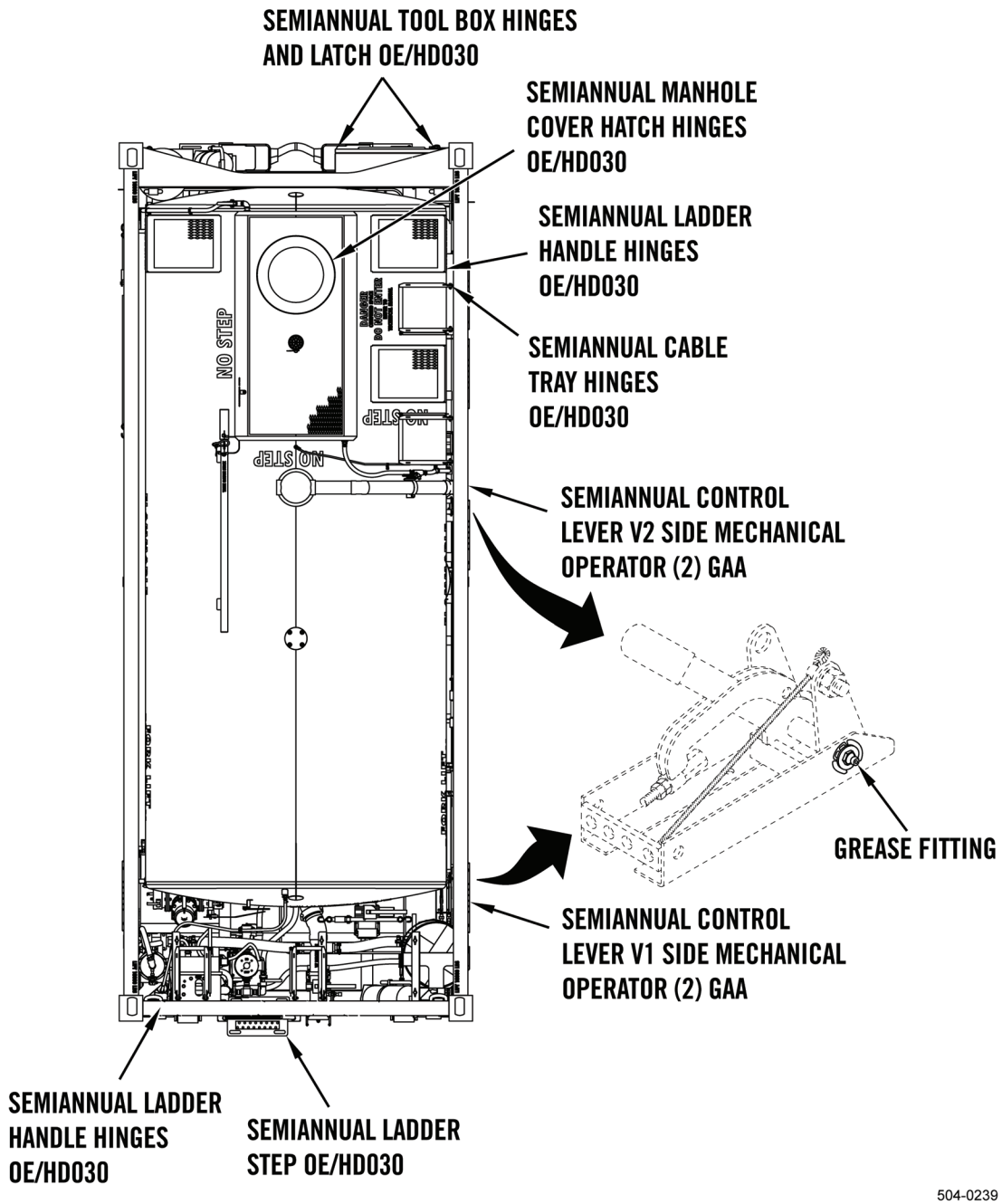

SEMIANNUAL TOOL BOX HINGES AND LATCH OE/HD030
SEMIANNUAL MANHOLE COVER HATCH HINGES OE/HD030
SEMIANNUAL LADDER HANDLE HINGES OE/HD030
SEMIANNUAL CABLE TRAY HINGES OE/HD030
SEMIANNUAL CONTROL LEVER V2 SIDE MECHANICAL OPERATOR (2) GAA
GREASE FITTING
SEMIANNUAL CONTROL LEVER V1 SIDE MECHANICAL OPERATOR (2) GAA
SEMIANNUAL LADDER HANDLE HINGES OE/HD030
SEMIANNUAL LADDER STEP OE/HD030
NO STEP
504-0239

Figure 2. Lubrication Points.

LUBRICATION INSTRUCTIONS – CONTINUED

Lubrication Points – Continued

Table 2. Lubrication Table.

LUBRICATION POINTS	CAPACITIES	ABOVE +15 °F (ABOVE -9 °C)	+40 °F TO -15 °F (+4 °C TO -26 °C)	INTERVAL
Cable Tray Hinges	As Required	OE/HDO-30	OE/HDO-10	Semiannual
Control Lever (V1) Mechanical Operator	As Required	GAA	GAA	Semiannual
Control Lever (V2) Side Mechanical Operator	As Required	GAA	GAA	Semiannual
Tool Box Hinges and Latch	As Required	OE/HDO-30	OE/HDO-10	Semiannual
Manhole Cover Hatch Hinges	As Required	OE/HDO-30	OE/HDO-10	Semiannual
Ladder Handles Hinges	As Required	OE/HDO-30	OE/HDO-10	Semiannual
Ladder Step	As Required	OE/HDO-30	OE/HDO-10	Semiannual

END OF TASK

LUBRICATION INSTRUCTIONS – CONTINUED

Lubricate Fuel Pump

1. Do not remove relief fittings (Figure 3, Item 2) unless seal leaks, in which case spring relief may be broken.

CAUTION

Do not over grease fuel pump. Excessive grease can cause seal failure. Failure to comply may cause damage to equipment.

2. Slowly apply grease into each grease fitting (Figure 3, Item 3) of fuel pump (Figure 3, Item 1) until grease begins to come out of each relief fitting (Figure 3, Item 2).

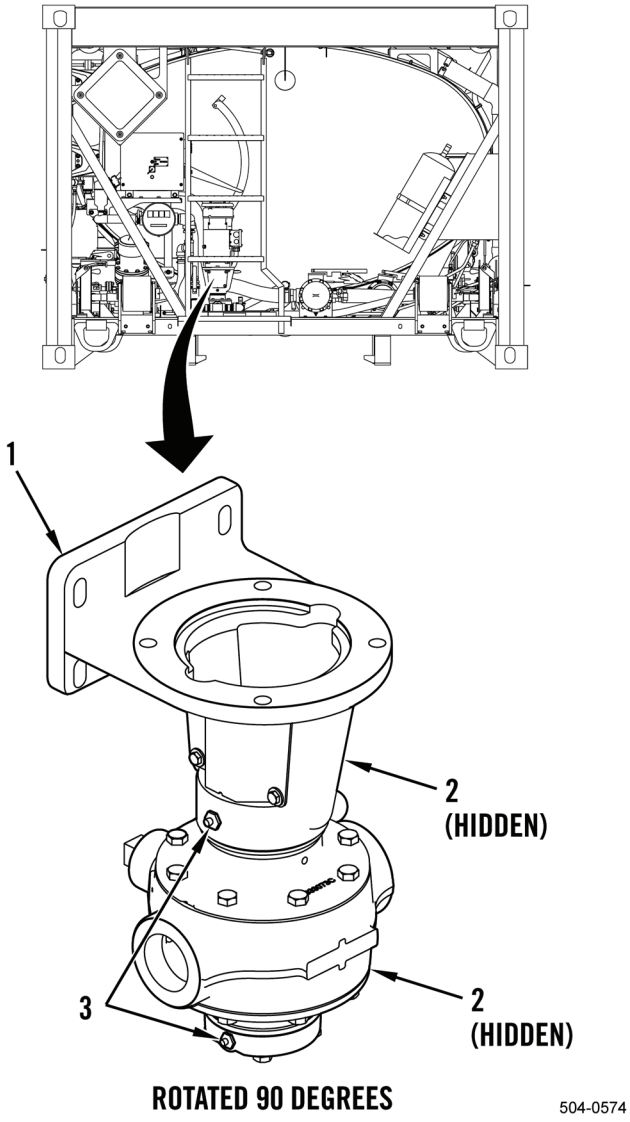


Figure 3. Grease Fitting and Relief Fitting.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DISCHARGE PIPING ASSEMBLY REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Wrench, adjustable, automotive, 18 in. (WP 0182, Item 16)
Wrench, pipe, 10 in. (WP 0182, Item 17)
Wrench, pipe, 18 in. (WP 0182, Item 18)

Materials/Parts

Petrolatum, technical (WP 0181, Item 15)
Nut, self-locking, hexagon (WP 0126, Item 32) Qty: 4
Nut, self-locking, hexagon (WP 0126, Item 33) Qty: 2

Personnel Required

Two

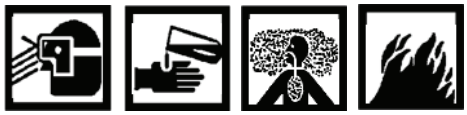
References

WP 0049
WP 0126

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)
TRM mounted on PLS trailer (TM 10-4930-370-10)

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

DISASSEMBLY

Upper Discharge Piping Assembly

1. Place drip pan beneath upper discharge pipe (Figure 1, Item 6) and two 2 in. (5.08 cm) fuel hoses (Figure 1, Items 11 and 15).
2. Loosen two clamps (Figure 1, Items 10 and 14) securing two 2 in. (5.08 cm) hoses (Figure 1, Items 11 and 15) on two straight pipe adapters (Figure 1, Item 9).
3. Remove two 2 in. (5.08 cm) hoses (Figure 1, Items 11 and 15) from straight pipe adapters (Figure 1, Item 9) and drain contents into drip pan.
4. Remove two locknuts (Figure 1, Item 16), and bolts (Figure 1, Item 4) from coupling (Figure 1, Item 5). Discard locknuts.
5. Remove coupling (Figure 1, Item 5) securing upper discharge pipe (Figure 1, Item 6) to lower discharge pipe (Figure 1, Item 3).
6. Remove slide gasket (Figure 1, Item 17) from lower discharge pipe (Figure 1, Item 3).
7. Remove two bolts (Figure 1, Item 7) and two locknuts (Figure 1, Item 13) securing strap (Figure 1, Item 8) to mounting bracket (Figure 1, Item 12). Discard locknuts.
8. Remove strap (Figure 1, Item 8) from upper discharge pipe (Figure 1, Item 6).
9. Remove upper discharge pipe (Figure 1, Item 6) from lower discharge pipe (Figure 1, Item 3).
10. If discharge piping assembly butterfly valve needs to be removed, refer to WP 0049.

END OF TASK

Lower Discharge Piping Assembly

1. Place drip pan under pipe tee (Figure 1, Item 20) and 1 in. fuel hose (Figure 1, Item 18).
2. Loosen hose clamp (Figure 1, Item 19) securing 1 in. fuel hose (Figure 1, Item 18) to pipe tee (Figure 1, Item 20).
3. Remove 1 in. fuel hose (Figure 1, Item 18) from pipe tee (Figure 1, Item 20) and drain contents into drip pan.
4. Remove two locknuts (Figure 1, Item 21) and bolts (Figure 1, Item 1) from coupling (Figure 1, Item 2). Discard locknuts.
5. Remove coupling (Figure 1, Item 2) and move slide gasket (Figure 1, Item 22) onto V1 valve (Figure 1, Item 23). Discard gasket (Figure 1, Item 22) if damaged.
6. Remove lower discharge pipe (Figure 1, Item 3) from V1 valve (Figure 1, Item 23).

DISASSEMBLY – CONTINUED

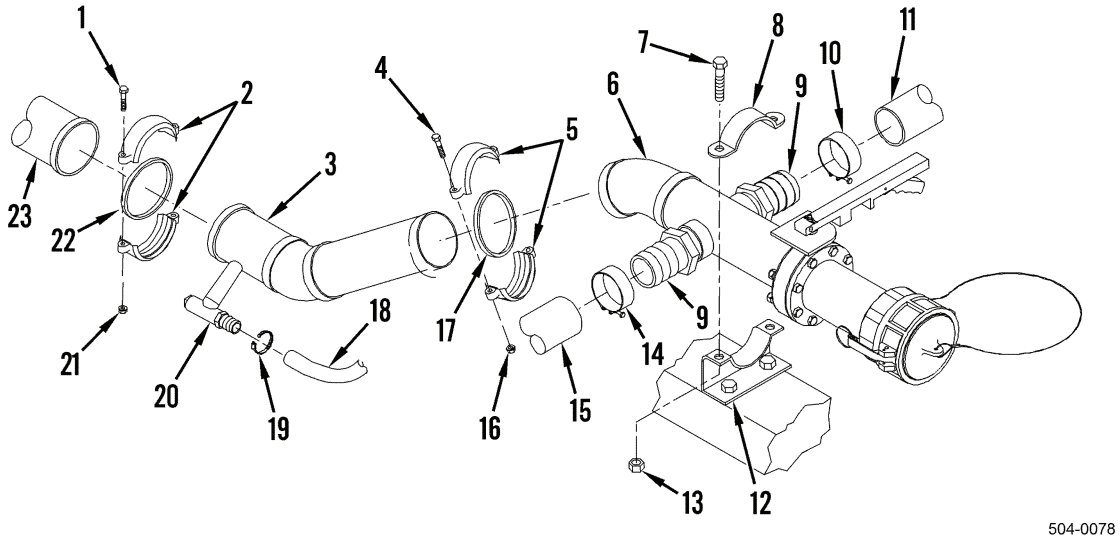


Figure 1. Discharge Piping Assembly.

END OF TASK

ASSEMBLY

Lower Discharge Piping Assembly

1. Lightly lubricate inner surface of coupling (Figure 1, Item 2) with petrolatum.
2. Position lower discharge pipe (Figure 1, Item 3) on V1 valve (Figure 1, Item 23).
3. Install coupling (Figure 1, Item 2) securing lower discharge pipe (Figure 1, Item 3) to V1 valve (Figure 1, Item 23).
   a. Install slide gasket (Figure 1, Item 22) onto lower discharge pipe (Figure 1, Item 3).
   b. Install two new locknuts (Figure 1, Item 21) and bolts (Figure 1, Item 1).
4. Install 1 in. fuel hose (Figure 1, Item 18) on pipe tee (Figure 1, Item 20). Install hose clamp (Figure 1, Item 19), and tighten hose clamp.

END OF TASK

ASSEMBLY – CONTINUED

Upper Discharge Piping Assembly

1. If discharge piping assembly butterfly valve was removed, refer to WP 0049.
2. Lightly lubricate inner surface of coupling (Figure 2, Item 3) with petrolatum. Position upper discharge piping assembly (Figure 2, Item 4) on mounting bracket (Figure 2, Item 10) and align other end with mating surface on lower discharge pipe (Figure 2, Item 1). Install coupling (Figure 2, Item 3) securing upper discharge pipe (Figure 2, Item 4) to lower discharge pipe (Figure 2, Item 1).
   a. Install slide gasket (Figure 2, Item 15) down lower discharge pipe (Figure 2, Item 1) and install coupling (Figure 2, Item 3).
   b. Install two new locknuts (Figure 2, Item 14) and bolts (Figure 2, Item 2).
3. Install strap (Figure 2, Item 6) on upper discharge pipe (Figure 2, Item 4).
4. Install two bolts (Figure 2, Item 5) and new locknuts (Figure 2, Item 11) on strap (Figure 2, Item 6) to secure upper discharge pipe (Figure 2, Item 4) to mounting bracket (Figure 2, Item 10).
5. Install two 2 in. (5.08 cm) fuel hoses (Figure 2, Items 9 and 13) on straight pipe adapters (Figure 2, Item 7). Install clamps (Figure 2, Items 8 and 12), and tighten clamps.

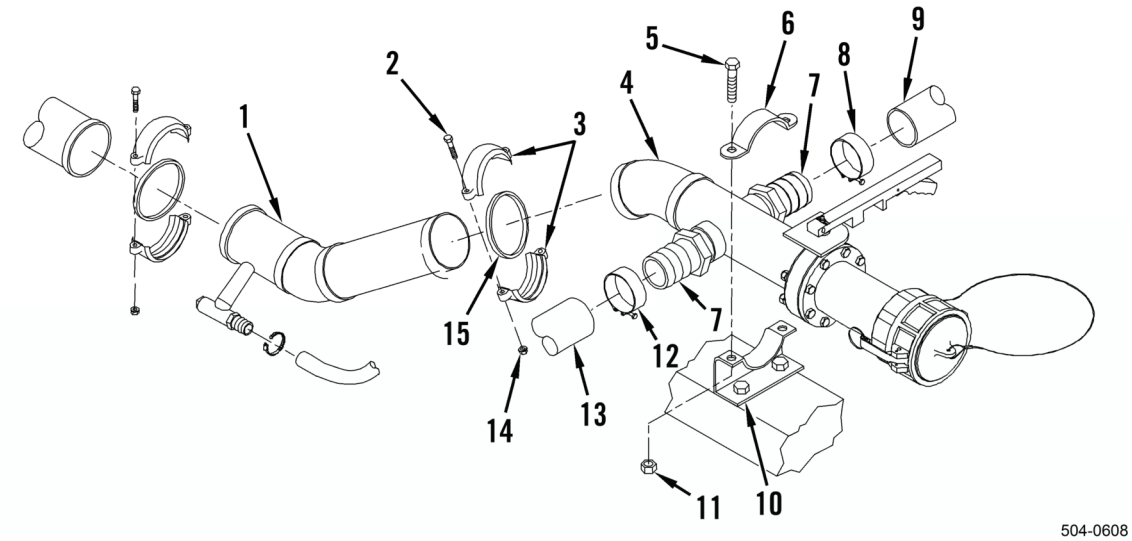


Figure 2. Discharge Piping Assembly.

6. Remove drip pan and dispose of contents IAW local SOP.
7. Add fuel and recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DISCHARGE PIPING ASSEMBLY BUTTERFLY VALVE REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)

Materials/Parts

Gasket (WP 0126, Item 6) Qty: 2
Nut, self-locking, hexagon (WP 0126, Item 4) Qty: 8

References

WP 0126

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

DISASSEMBLY

1. Place drip pan under butterfly valve (Figure 1, Item 7).
2. Remove eight locknuts (Figure 1, Item 1), 16 flat washers (Figure 1, Item 2), and eight bolts (Figure 1, Item 6) securing Port C (Figure 1, Item 5) and butterfly valve (Figure 1, Item 7) to upper discharge pipe (Figure 1, Item 3). Discard locknuts.
3. Remove Port C (Figure 1, Item 5) from butterfly valve (Figure 1, Item 7).
4. Remove gasket (Figure 1, Item 4) from Port C (Figure 1, Item 5) and butterfly valve (Figure 1, Item 7) mating surfaces. Discard gasket.
5. Remove butterfly valve (Figure 1, Item 7) from upper discharge pipe (Figure 1, Item 3).
6. Remove gasket (Figure 1, Item 4) from upper discharge pipe (Figure 1, Item 3) and butterfly valve (Figure 1, Item 7). Discard gasket.
7. Remove gasket debris from Port C (Figure 1, Item 5), upper discharge pipe (Figure 1, Item 3), and butterfly valve (Figure 1, Item 7) mating surfaces.
8. Remove drip pan and dispose of contents IAW local SOP.

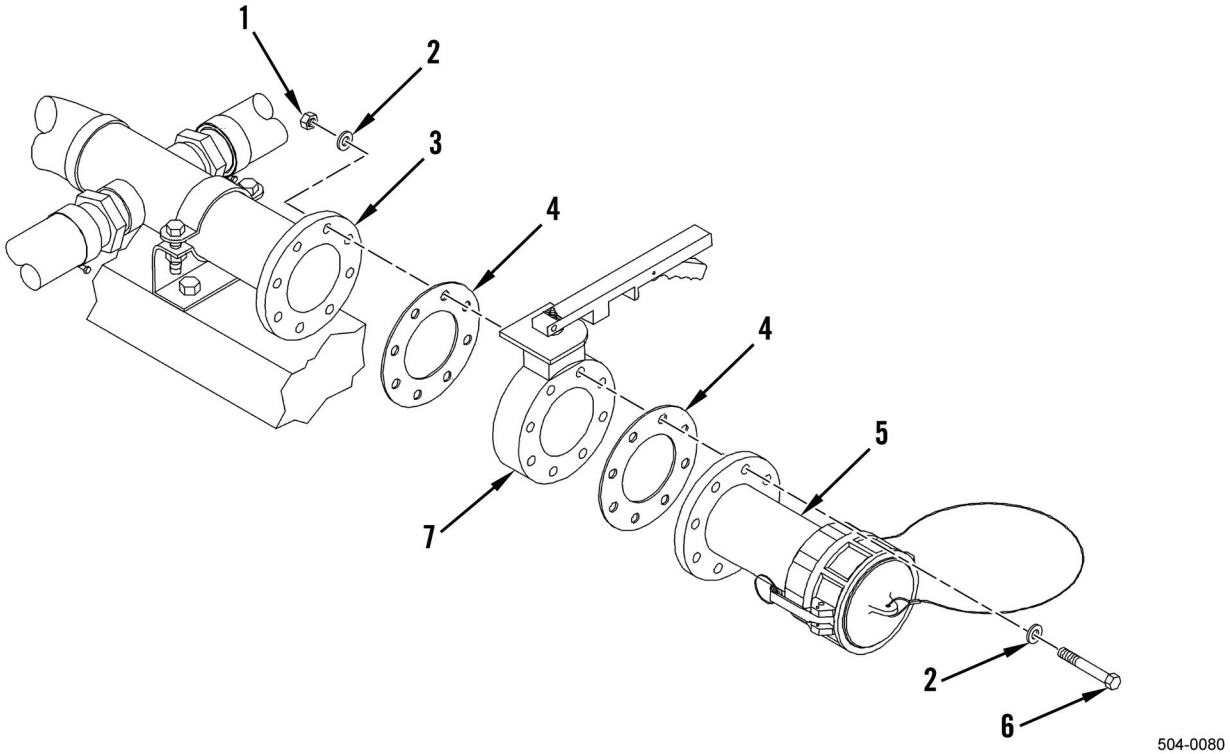


Figure 1. Discharge Piping Assembly Butterfly Valve.

END OF TASK

ASSEMBLY

1. Install new gaskets (Figure 1, Item 4) on upper discharge pipe (Figure 1, Item 3) and Port C (Figure 1, Item 5).
2. Position butterfly valve (Figure 1, Item 7) and Port C (Figure 1, Item 5) on upper discharge pipe (Figure 1, Item 3) aligning all eight holes.
3. Install eight bolts (Figure 1, Item 6), 16 flat washers (Figure 1, Item 2), and eight new locknuts (Figure 1, Item 1) hand-tight.
4. Tighten eight locknuts (Figure 1, Item 1) to secure Port C (Figure 1, Item 5), butterfly valve (Figure 1, Item 7), and upper discharge pipe (Figure 1, Item 3).
5. Torque locknuts (Figure 1, Item 1) to 27-33 lb-ft (37-45 Nm).
6. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DISCHARGE PIPING ASSEMBLY BUTTERFLY VALVE LEVER REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

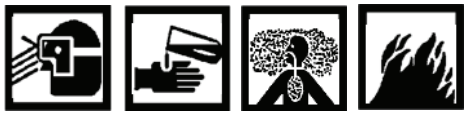
References

WP 0126

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Remove nut (Figure 1, Item 1) and screw (Figure 1, Item 3) securing manual control lever (Figure 1, Item 2) to butterfly valve shaft (Figure 1, Item 4).
2. Remove manual control lever (Figure 1, Item 2) from butterfly valve shaft (Figure 1, Item 4).

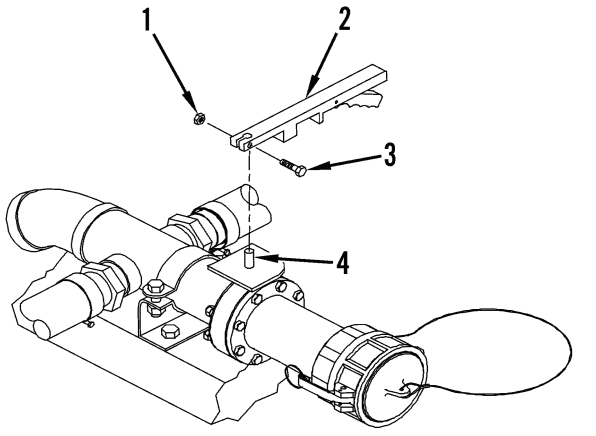


Figure 1. Butterfly Valve Manual Control Lever.

END OF TASK

INSTALLATION

1. Position manual control lever (Figure 2, Item 2) on butterfly valve shaft (Figure 2, Item 4).
2. Install screw (Figure 2, Item 3) in manual control lever (Figure 2, Item 2).
3. Install nut (Figure 2, Item 1) on screw (Figure 2, Item 3).

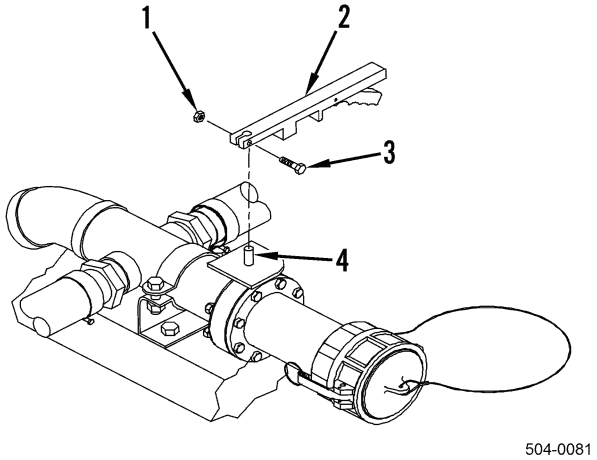


Figure 2. Butterfly Valve Manual Control Lever.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

PORT C VACUUM BREAKER REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)

Materials/Parts

Sealing compound (WP 0181, Item 20)

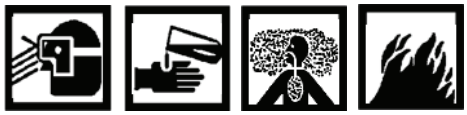
References

WP 0126

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Make sure V7 Discharge Port C control valve is closed (TM 10-4930-370-10).
2. Place drip pan under Port C (Figure 1, Item 1).
3. Make sure fuel is drained from Port C vacuum breaker (VB2) (TM 10-4930-370-10).
4. Remove vacuum breaker (VB2) valve (Figure 1, Item 2) from nipple (Figure 1, Item 4).
5. Remove elbow (Figure 1, Item 3) from vacuum breaker (VB2) valve (Figure 1, Item 2).
6. Remove nipple (Figure 1, Item 4) from Port C (Figure 1, Item 1).

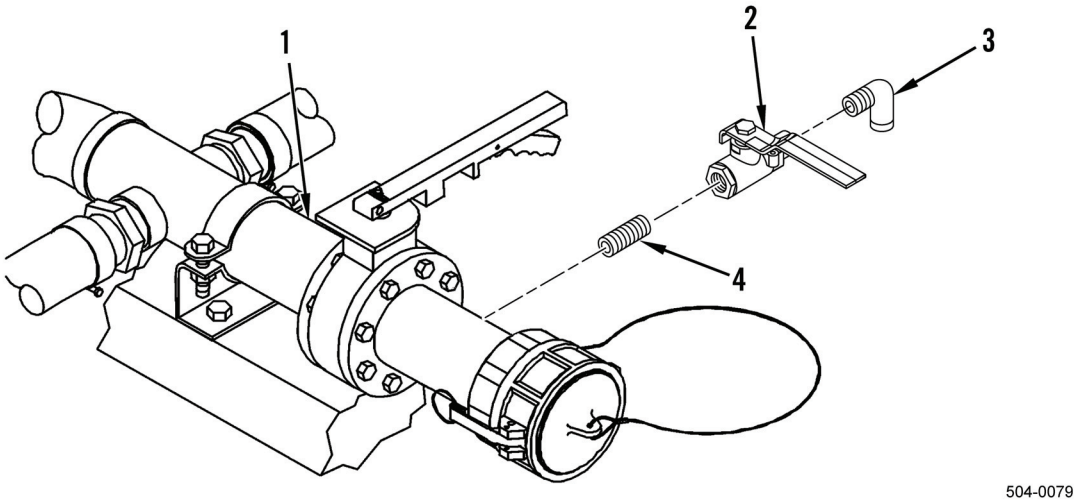


Figure 1. Port C Vacuum Breaker (VB2).

END OF TASK

INSTALLATION

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

1. Apply sealing compound on threads and install nipple (Figure 1, Item 4) on Port C (Figure 1, Item 1).
2. Apply sealing compound on threads and install vacuum breaker (VB2) valve (Figure 1, Item 2) on nipple (Figure 1, Item 4).
3. Apply sealing compound on threads and install elbow (Figure 1, Item 3) on vacuum breaker (VB2) valve (Figure 1, Item 2).
4. Remove drip pan and dispose of contents IAW local SOP.
5. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

LEFT HAND OR RIGHT HAND DISCHARGE ARM REPAIR
Removal, Disassembly, Clean, Assembly, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Compressing tool, splicing sleeve (WP 0182, Item 1)
Wrench, adjustable, automotive, 15 in. (WP 0182, Item 15)
Wrench, adjustable, automotive, 18 in. (WP 0182, Item 16)
Wrench, pipe, 10 in. (WP 0182, Item 17)
Wrench, pipe, 18 in. (WP 0182, Item 18)
Vise, machinist's, 4 in. (WP 0182, Item 13)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)

Materials/Parts - Continued

Cloth, cleaning (WP 0181, Item 4)
Sealing compound (WP 0181, Item 20)
Rope, wire (WP 0128, Item 1)
Seal, interface (WP 0128, Item 4)
Swaging sleeve, wire rope (WP 0128, Item 2) Qty: 2

References

WP 0127
WP 0128

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

NOTE

- Ensure discharge arm has been evacuated (TM 10-4930-370-10).
- Place drip pan under discharge arm.

1. Close V1 valve (TM 10-4930-370-10).
2. Place drip pan under 1 in. (2.54 cm) discharge fuel hose (Figure 1, Item 3).
3. Loosen hose clamp (Figure 1, Item 2) securing 1 in. (2.54 cm) discharge fuel hose (Figure 1, Item 3) to hose barb (Figure 1, Item 1).
4. Remove 1 in. (2.54 cm) discharge fuel hose (Figure 1, Item 3) from hose barb (Figure 1, Item 1) and drain contents into drip pan.
5. Remove hose clamp (Figure 1, Item 2) from 1 in. (2.54 cm) discharge fuel hose (Figure 1, Item 3).

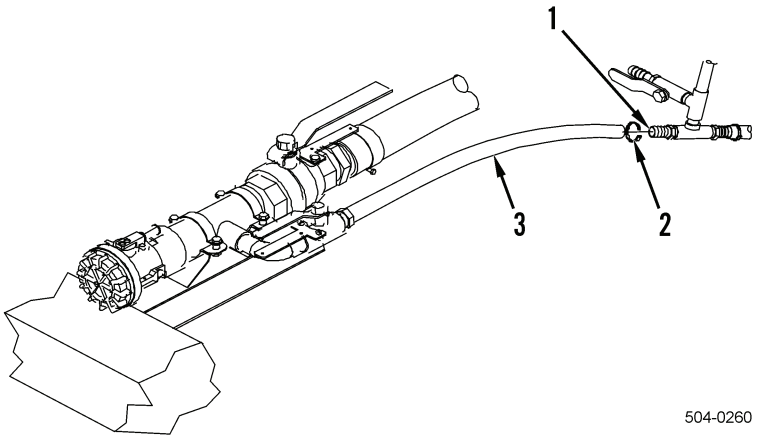


Figure 1. 1 in. (2.54 cm) Discharge Fuel Hose.

6. Reposition drip pan under 2 in. (5.08 cm) discharge fuel hose (Figure 2, Item 3).
7. Loosen hose clamp (Figure 2, Item 2) securing 2 in. (5.08 cm) discharge fuel hose (Figure 2, Item 3) to straight pipe adapter (Figure 2, Item 1).
8. Remove 2 in. (5.08 cm) discharge fuel hose (Figure 2, Item 3) from straight pipe adapter (Figure 2, Item 1) and drain contents into drip pan.
9. Remove hose clamp (Figure 2, Item 2) from 2 in. (5.08 cm) discharge fuel hose (Figure 2, Item 3).

REMOVAL – CONTINUED

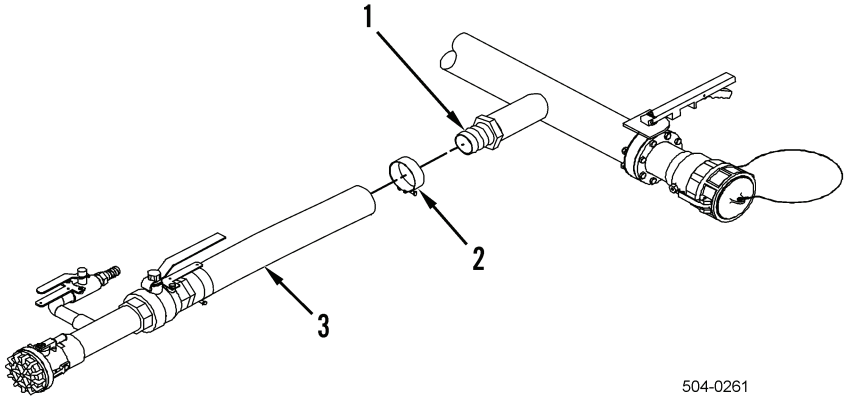


Figure 2. 2 in. (5.08 cm) Discharge Fuel Hose.

10. Remove four bolts (Figure 3, Item 2), four nuts (Figure 3, Item 6), and two clamps (Figure 3, Item 3) from frame (Figure 3, Item 5).
11. Remove discharge arm (Figure 3, Item 4), 1 in. (2.54 cm) fuel discharge hose (Figure 3, Item 7), and 2 in. (5.08 cm) fuel discharge hose (Figure 3, Item 1) from frame (Figure 3, Item 5) as an assembly.

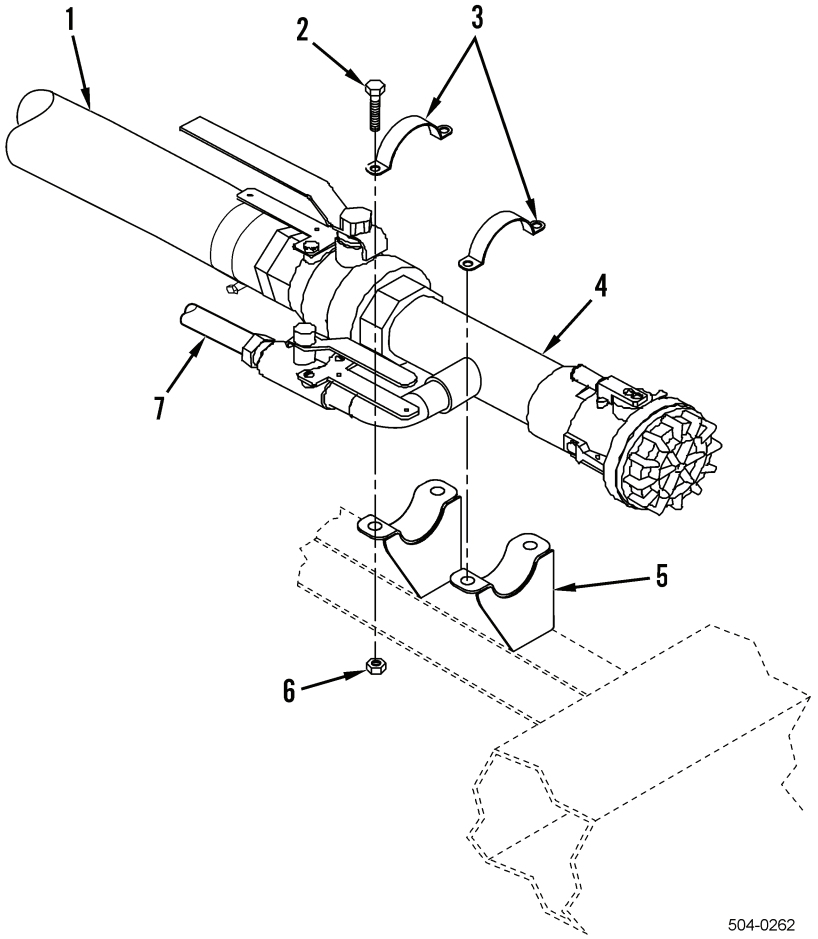


Figure 3. Discharge Arm Removal.

END OF TASK

DISASSEMBLY

Left Hand or Right Hand Discharge Arm

1. Loosen hose clamp (Figure 4, Item 7) securing 1 in. (2.54 cm) discharge fuel hose (Figure 4, Item 6) to hose barb (Figure 4, Item 8).
2. Remove 1 in. (2.54 cm) discharge fuel hose (Figure 4, Item 6) from hose barb (Figure 4, Item 8).
3. Remove hose clamp (Figure 4, Item 7) from 1 in. (2.54 cm) discharge fuel hose (Figure 4, Item 6).
4. Remove hose barb (Figure 4, Item 8) from ball valve (Figure 4, Item 9).
5. Remove ball valve (Figure 4, Item 9) from pipe nipple (Figure 4, Item 10).
6. Remove pipe nipple (Figure 4, Item 10) from pipe elbow (Figure 4, Item 11).
7. Remove pipe elbow (Figure 4, Item 11) from pipe nipple (Figure 4, Item 12).
8. Remove pipe nipple (Figure 4, Item 12) from discharge tube (Figure 4, Item 1).
9. Loosen hose clamp (Figure 4, Item 4) securing 2 in. (5.08 cm) discharge fuel hose (Figure 4, Item 5) to hose barb (Figure 4, Item 3).
10. Remove 2 in. (5.08 cm) discharge fuel hose (Figure 4, Item 5) and hose clamp (Figure 4, Item 4) from hose barb (Figure 4, Item 3).
11. Remove clamp (Figure 4, Item 4) from discharge fuel hose (Figure 4, Item 5).
12. Remove hose barb (Figure 4, Item 3) from ball valve (Figure 4, Item 2).
13. Remove ball valve (Figure 4, Item 2) from discharge tube (Figure 4, Item 1).
14. Remove discharge tube (Figure 4, Item 1) from quick disconnect coupling half (Figure 4, Item 13).

DISASSEMBLY – CONTINUED

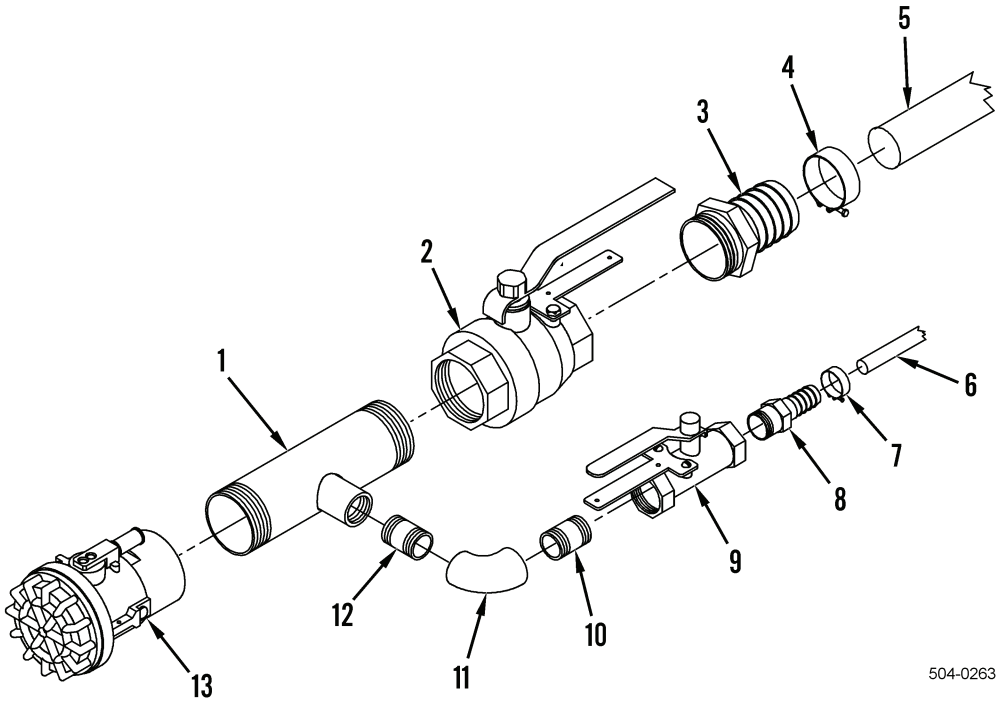


Figure 4. Discharge Arm Disassembly.

END OF TASK

DISASSEMBLY – CONTINUED

Cap, Bumper, and Seal Removal

1. Twist dust cap (Figure 5, Item 8) counterclockwise (CCW) to remove it from coupling assembly (Figure 5, Item 4).
2. Remove dust cap seal (Figure 5, Item 7) from dust cap (Figure 5, Item 8). Discard dust cap seal.
3. Cut and remove cable (Figure 5, Item 1) from coupling assembly (Figure 5, Item 4).
4. Remove split ring (Figure 5, Item 3), sleeve (Figure 5, Item 2) and cable (Figure 5, Item 1) from coupling assembly (Figure 5, Item 4).
5. Remove bumper (Figure 5, Item 6) from coupling assembly (Figure 5, Item 4) interface.
6. Remove coupling seal (Figure 5, Item 5) from coupling assembly (Figure 5, Item 4) interface.

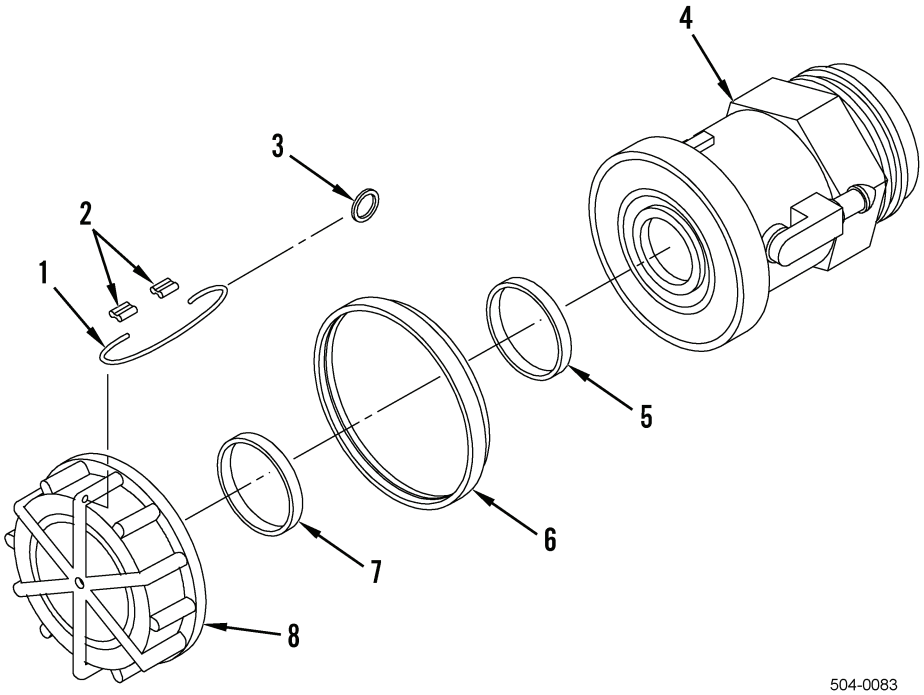


Figure 5. Valved Unisex Coupling Assembly.

END OF TASK

CLEAN

WARNING

Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

1. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
2. Allow parts to dry thoroughly.

END OF TASK

ASSEMBLY

Cap, Bumper, and Seal Installation

1. Install coupling seal (Figure 5, Item 5) in groove of coupling (Figure 5, Item 4) interface.
2. Install bumper (Figure 5, Item 6) on coupling assembly (Figure 5, Item 4) interface with thin lip seal end facing away from coupling assembly (Figure 5, Item 4).
3. Install dust cap (Figure 5, Item 8) and dust cap seal (Figure 5, Item 7).
4. Loop one end of 18 in. (45.72 cm) cable (Figure 5, Item 1) through sleeve (Figure 5, Item 2), dust cap (Figure 5, Item 8), and back through sleeve (Figure 5, Item 2).
5. Crimp sleeve (Figure 5, Item 2).
6. Loop other end of 18 in. (45.72 cm) cable (Figure 5, Item 1) through sleeve (Figure 5, Item 2), split ring (Figure 5, Item 3), and back through sleeve (Figure 5, Item 2).
7. Crimp sleeve (Figure 5, Item 2).
8. Install new seal (Figure 5, Item 7) on dust cap (Figure 5, Item 8).
9. Twist dust cap (Figure 5, Item 8) clockwise (CW) to until it locks on coupling assembly (Figure 5, Item 4).

END OF TASK

ASSEMBLY – CONTINUED

Left Hand or Right Hand Discharge Arm

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

NOTE

Apply sealing compound to all threaded mating surfaces.

1. Apply sealing compound to threads of discharge tube (Figure 6, Item 1) and install quick disconnect coupling half (Figure 6, Item 13) on discharge tube.
2. Apply sealing compound to threads of discharge tube (Figure 6, Item 1) and install ball valve (Figure 6, Item 2) on discharge tube.
3. Apply sealing compound to threads on hose barb (Figure 6, Item 3) and install hose barb into ball valve (Figure 6, Item 2).
4. Install hose clamp (Figure 6, Item 4) on 2 in. (5.08 cm) discharge fuel hose (Figure 6, Item 5), install hose and clamp on hose barb (Figure 6, Item 3), and tighten clamp.
5. Apply sealing compound to threads on pipe nipple (Figure 6, Item 12) and install pipe nipple into discharge tube (Figure 6, Item 1).
6. Apply sealing compound to threads on pipe nipple (Figure 6, Item 12) and install elbow (Figure 6, Item 11) onto pipe nipple.
7. Apply sealing compound to threads on pipe nipple (Figure 6, Item 10) and install pipe nipple into pipe elbow (Figure 6, Item 11).
8. Apply sealing compound to threads on pipe nipple (Figure 6, Item 10) and install ball valve (Figure 6, Item 9) on pipe nipple.
9. Apply sealing compound to threads on hose barb (Figure 6, Item 8) and install hose barb into ball valve (Figure 6, Item 9).
10. Install hose clamp (Figure 6, Item 7) on 1 in. (2.54 cm) discharge fuel hose (Figure 6, Item 6), install hose and clamp on hose barb (Figure 6, Item 8), and tighten clamp.

ASSEMBLY – CONTINUED

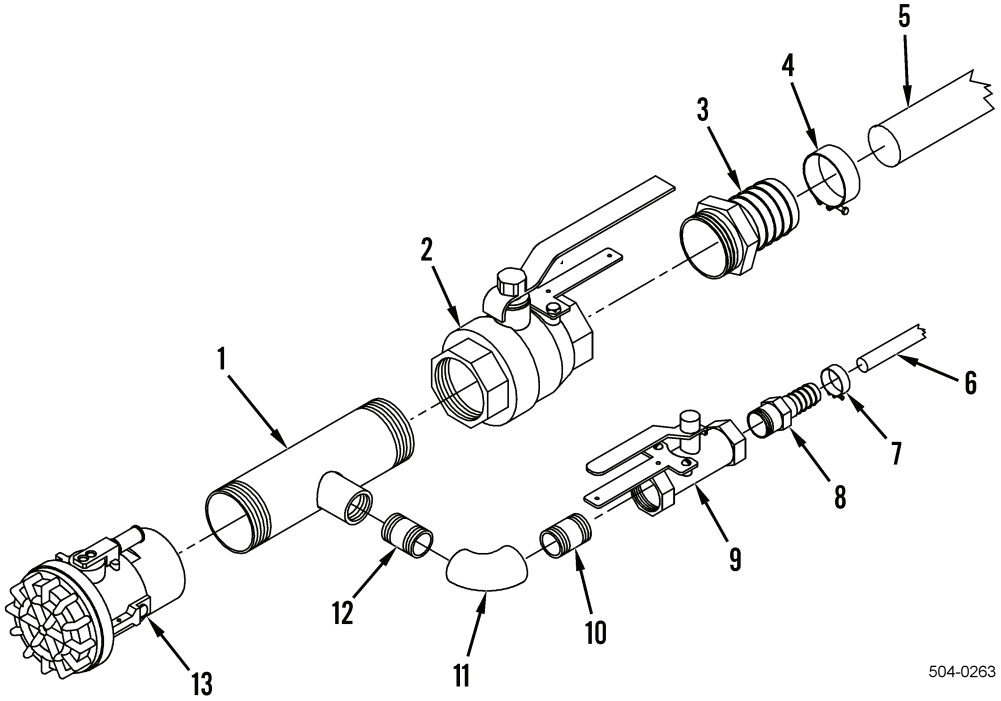


Figure 6. Discharge Arm Assembly.

END OF TASK

INSTALLATION

1. Position discharge arm (Figure 7, Item 4), 1 in. (2.54 cm) fuel discharge hose (Figure 7, Item 7), and 2 in. (5.08 cm) fuel discharge hose (Figure 7, Item 1) on frame (Figure 7, Item 5) as an assembly.
2. Secure fuel discharge arm (Figure 7, Item 4) on frame (Figure 7, Item 5) with two clamps (Figure 7, Item 3), four bolts (Figure 7, Item 2) and four nuts (Figure 7, Item 6). Tighten bolts and nuts securely.

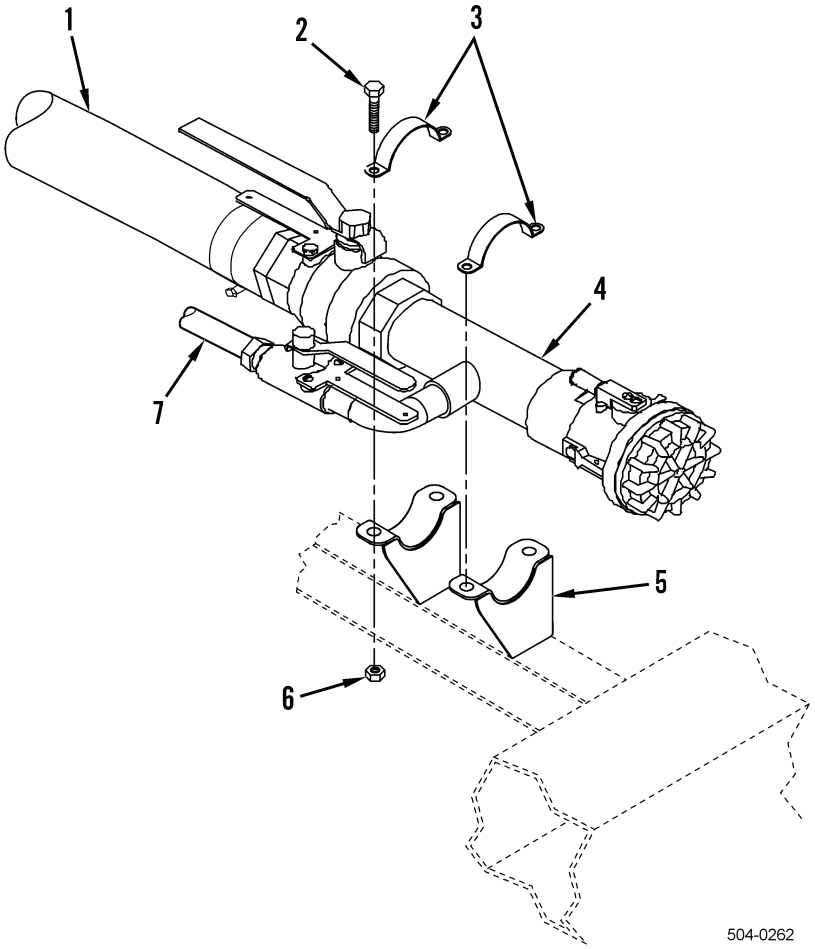


Figure 7. Discharge Arm Installation.

INSTALLATION – CONTINUED

3. Install hose clamp (Figure 8, Item 2) on 2 in. (5.08 cm) discharge fuel hose (Figure 8, Item 3).
4. Install 2 in. (5.08 cm) discharge fuel hose (Figure 8, Item 3) on straight pipe adapter (Figure 8, Item 1) and tighten hose clamp (Figure 8, Item 2).

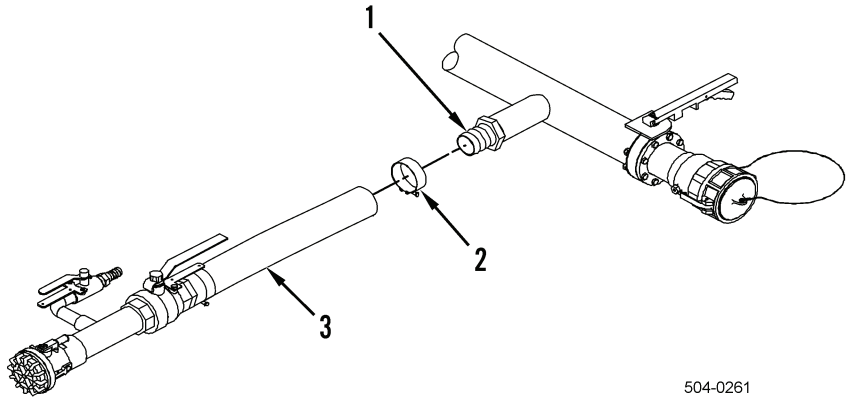


Figure 8. 2 in. (5.08 cm) Discharge Fuel Hose.

5. Install hose clamp (Figure 9, Item 2) on 1 in. (2.54 cm) discharge fuel hose (Figure 9, Item 3).
6. Install 1 in. (2.54 cm) discharge fuel hose (Figure 9, Item 3) on hose barb (Figure 9, Item 1) and tighten hose clamp (Figure 9, Item 2).

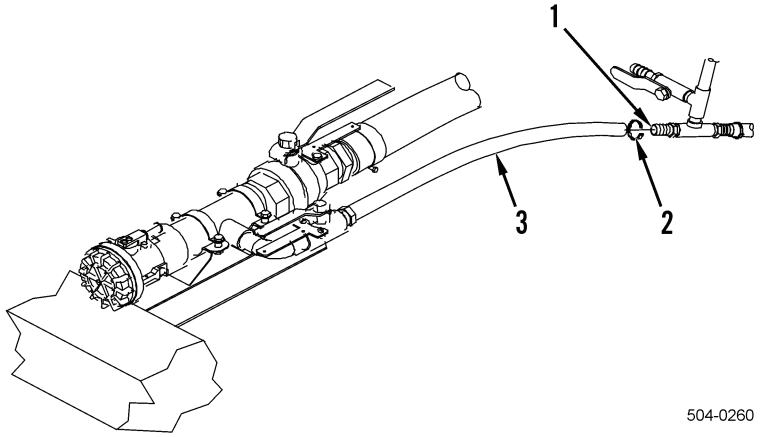


Figure 9. 1 in. (2.54 cm) Discharge Fuel Hose

7. Recirculate fuel to check for leaks at all connection points (TM 10-4930-370-10).
8. Remove drip pan and dispose of contents IAW local SOP.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

NON-VALVED UNISEX COUPLING ASSEMBLY REPLACEMENT
Removal, Clean, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Wrench, adjustable, automotive, 18 in. (WP 0182, Item 16)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Cloth, cleaning (WP 0181, Item 4)
Sealing compound (WP 0181, Item 20)

References

WP 0129

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Wet metal surfaces are slippery. Use caution when climbing on tank.
- Ground self and equipment before opening manhole cover to prevent explosion caused by electrostatic charge.
- Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly.
- Eye protection is required when opening manhole cover.
- Failure to comply may result in injury or death to personnel.

NOTE

There are valved and non-valved unisex coupling assemblies that are replaced in the same way. This procedure covers a non-valved unisex coupling.

REMOVAL

1. Open manhole cover to relieve pressure.
2. Use a pipe wrench to remove non-valved unisex coupling (Figure 1, Item 1) from nipple-half (Figure 1, Item 2).

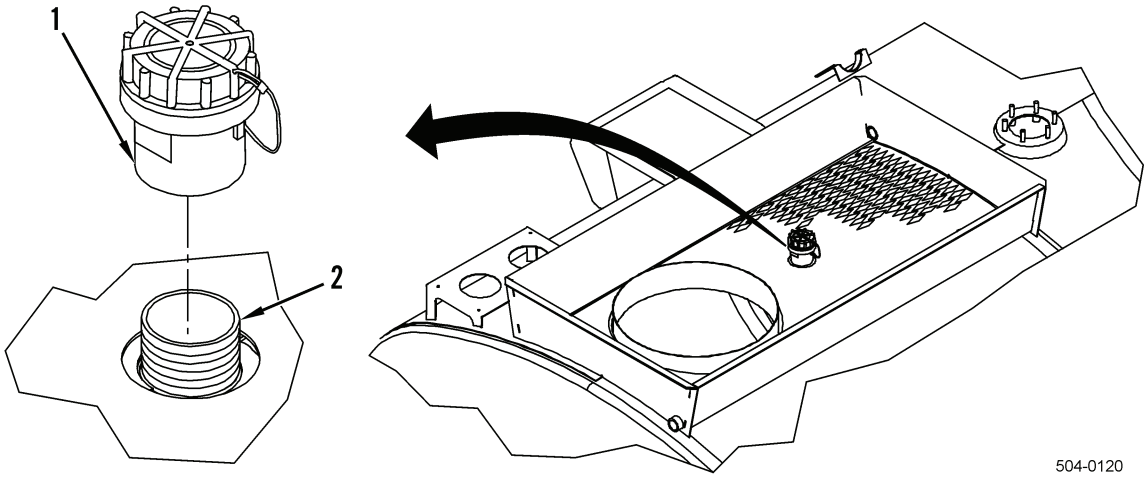
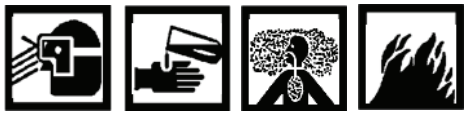


Figure 1. Non-Valved Unisex Coupling Assembly.

END OF TASK

CLEAN

WARNING



Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may result in injury or death to personnel.

1. Clean threads on non-valved unisex coupling with a cleaning cloth and solvent cleaning compound. Allow parts to thoroughly dry.
2. Clean threads on nipple-half with a cleaning cloth and solvent cleaning compound. Allow parts to thoroughly dry.
3. Inspect threads on non-valved unisex coupling for cracks, corrosion, or damage. If cracks, corrosion, or damage are found, replace with a serviceable like item.

END OF TASK

INSTALLATION

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury or death to personnel.

1. Apply sealing compound to threads of nipple-half (Figure 1, Item 2).
2. Install non-valved unisex coupling (Figure 1, Item 1) on nipple-half (Figure 1, Item 2).
3. Close manhole cover.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

NON-VALVED UNISEX COUPLING ASSEMBLY REPAIR
Disassembly, Clean, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Compressing tool, splicing sleeve (WP 0182, Item 1)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)

Materials/Parts - Continued

Cloth, cleaning (WP 0181, Item 4)
Rope, wire (WP 0129, Item 9)
Seal, interface (WP 0129, Item 4)
Seal, interface (WP 0129, Item 6)
Swaging sleeve, wire rope (WP 0129, Item 8) Qty: 2

References

WP 0129

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

DISASSEMBLY

1. Twist dust cap (Figure 1, Item 8) CCW to remove it from coupling assembly (Figure 1, Item 4).
2. Remove dust cap (Figure 1, Item 8) and dust cap seal (Figure 1, Item 7).
   a. Cut and remove cable (Figure 1, Item 1) from coupling assembly (Figure 1, Item 4).
   b. Remove split ring (Figure 1, Item 3) and cable (Figure 1, Item 1) from coupling assembly (Figure 1, Item 4).
   c. Remove dust cap seal (Figure 1, Item 7) from dust cap (Figure 1, Item 8).
3. Remove bumper (Figure 1, Item 6) from coupling assembly (Figure 1, Item 4) interface.
4. Remove coupling seal (Figure 1, Item 5) from coupling assembly (Figure 1, Item 4) interface.

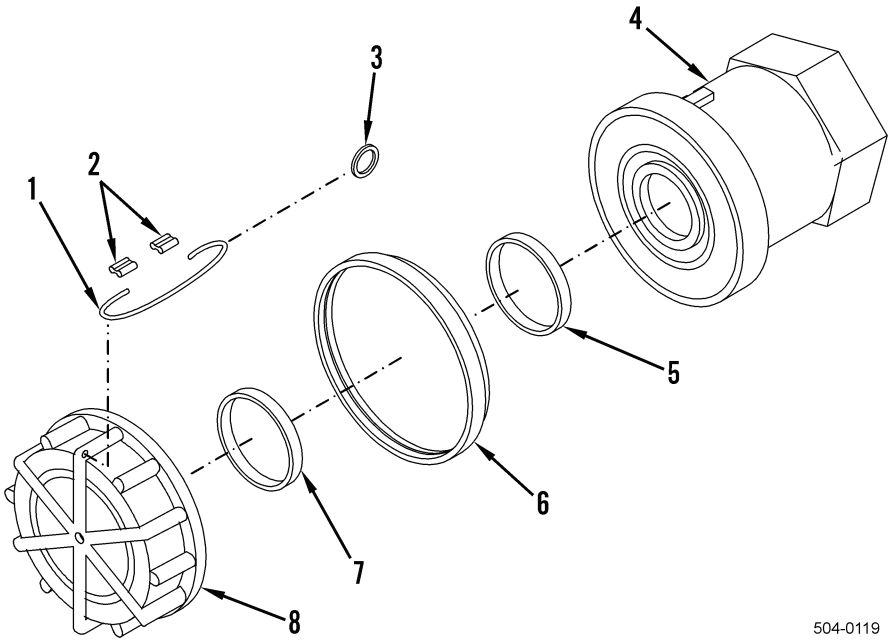


Figure 1. Non-Valved Unisex Coupling Assembly.

END OF TASK

CLEAN

WARNING

Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

1. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
2. Allow parts to thoroughly dry.

END OF TASK

ASSEMBLY

1. Install new coupling seal (Figure 1, Item 5) in groove of coupling (Figure 1, Item 4) interface.
2. Install new bumper (Figure 1, Item 6) on coupling assembly (Figure 1, Item 2) interface with thin lip seal end facing away from coupling assembly (Figure 1, Item 4).
3. Install dust cap (Figure 1, Item 8) and dust cap seal (Figure 1, Item 7).
   a. Loop one end of new 18 in. (45.72 cm) cable (Figure 1, Item 1) through new sleeve (Figure 1, Item 2), dust cap (Figure 1, Item 8), and back through sleeve (Figure 1, Item 2).
   b. Crimp sleeve (Figure 1, Item 2).
   c. Loop other end of 18 in. (45.72 cm) cable (Figure 1, Item 1) through sleeve (Figure 1, Item 2), split ring (Figure 1, Item 3), and back through sleeve (Figure 1, Item 2).
   d. Crimp sleeve (Figure 1, Item 2).
   e. Install new seal (Figure 1, Item 7) on dust cap (Figure 1, Item 8).
4. Twist dust cap (Figure 1, Item 8) CW until it locks on coupling assembly (Figure 1, Item 4).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL PUMP ASSEMBLY REPLACEMENT
Removal, Disassembly, Assembly, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Vise, machinist's, 4 in. (WP 0182, Item 13)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)
Wrench, pipe, 10 in. (WP 0182, Item 17)
Wrench, pipe, 18 in. (WP 0182, Item 18)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Grease, electrically conductive (WP 0181, Item 9)

Materials/Parts - Continued

Nut, self-locking, hexagon (WP 0130, Item 16) Qty: 4
Nut, self-locking, hexagon (WP 0130, Item 24) Qty: 4
Strap, tiedown (WP 0133, Item 17) Qty: 2
Washer, lock (WP 0130, Item 29) Qty: 2

Personnel Required

Two

References

WP 0122
WP 0130
WP 0131

Equipment Condition

Motor removed (WP 0058)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

1. Place drip pan under filter inlet hose (Figure 1, Item 1) at V14 valve (Figure 1, Item 12).
2. Loosen hose clamp (Figure 1, Item 14) and remove filter inlet hose (Figure 1, Item 1) from hose barb (Figure 1, Item 13) on V14 valve (Figure 1, Item 12).
3. Place drip pan under evacuation return hose (Figure 1, Item 5).
4. Loosen hose clamp (Figure 1, Item 6) and remove evacuation return hose (Figure 1, Item 5) from hose barb (Figure 1, Item 7) on V10 valve (Figure 1, Item 8).
5. Place drip pan under hose (Figure 1, Item 4) at hose barb (Figure 1, Item 2).
6. Loosen hose clamp (Figure 1, Item 3) and remove hose (Figure 1, Item 4) from hose barb (Figure 1, Item 2).
7. Remove two tiedown straps (Figure 1, Item 10) from two nipples (Figure 1, Item 11) and hose (Figure 1, Item 9). Discard tiedown straps.

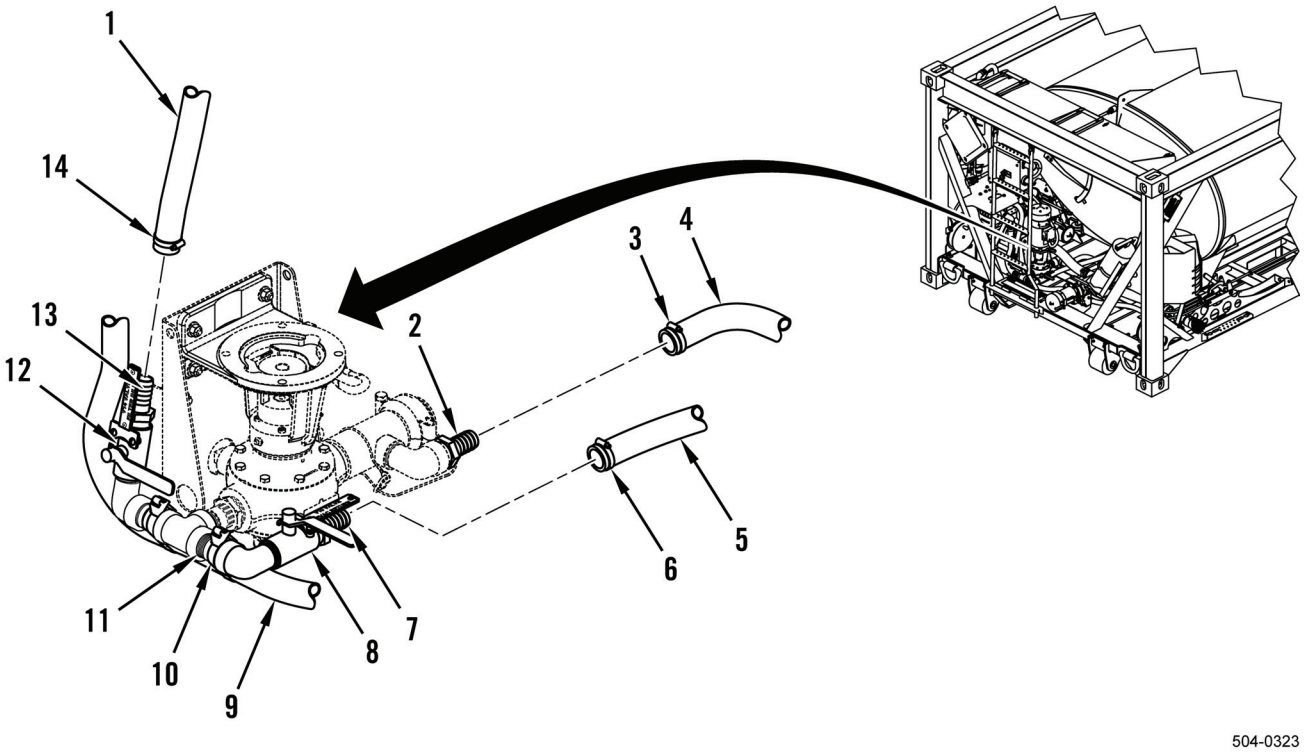


Figure 1. Fuel Pump Hoses.

REMOVAL – CONTINUED

8. Remove screw (Figure 2, Item 5), lockwasher (Figure 2, Item 4), and jumper wire (Figure 2, Item 3) from frame mount (Figure 2, Item 8). Discard lockwasher.

WARNING

Fuel pump weighs 50 lb. (23 kg). Assistance is required for removal and installation. Failure to comply may result in injury or death to personnel.

9. Support fuel pump assembly (Figure 2, Item 1) with assistance.
10. Remove four bolts (Figure 2, Item 7), four washers (Figure 2, Item 6), and four nuts (Figure 2, Item 2) from frame mount (Figure 2, Item 8) and fuel pump assembly (Figure 2, Item 1).
11. Remove fuel pump assembly (Figure 2, Item 1) from TRM with assistance.

NOTE

Fittings are shown removed in Figure 2 for clarity. They will not be removed until the disassembly task.

12. Disassemble bracket and fittings from pump (Bracket and Fittings task in this WP).

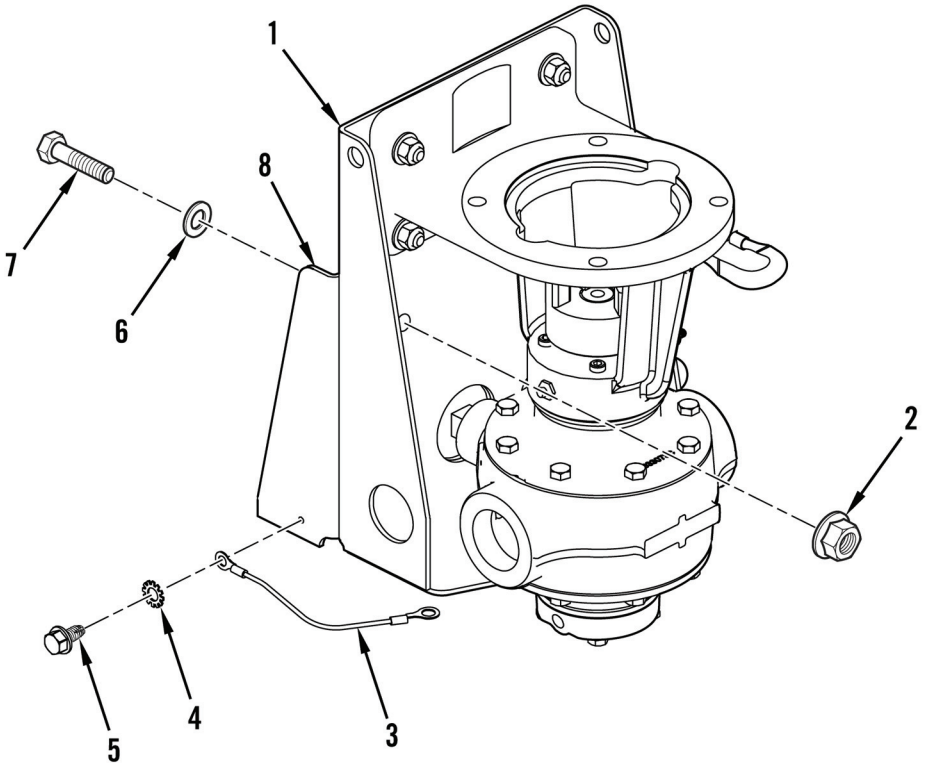


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Figure 2. Fuel Pump Assembly.

END OF TASK

DISASSEMBLY

Bracket and Fittings

1. Remove four bolts (Figure 3, Item 7) and jumper wire (Figure 3, Item 8) from fuel pump (Figure 3, Item 6) and bracket (Figure 3, Item 3).
2. Remove four bolts (Figure 3, Item 1), eight washers (Figure 3, Item 2), four locknuts (Figure 3, Item 5) and fuel pump (Figure 3, Item 6) from bracket (Figure 3, Item 3). Discard locknuts.

NOTE

- Mark/note orientation of strainer and fittings prior to removal.
- Secure fuel pump before removal of strainer assembly.

3. Remove strainer assembly (Figure 3, Item 4) from fuel pump (Figure 3, Item 6).

NOTE

Fittings do not need to be disassembled to be removed from fuel pump. Valve and elbow will be removed from other fittings to allow clearance for removal of other fittings.

4. Remove valve and elbow (Figure 3, Item 9) from fittings (Figure 3, Item 10).

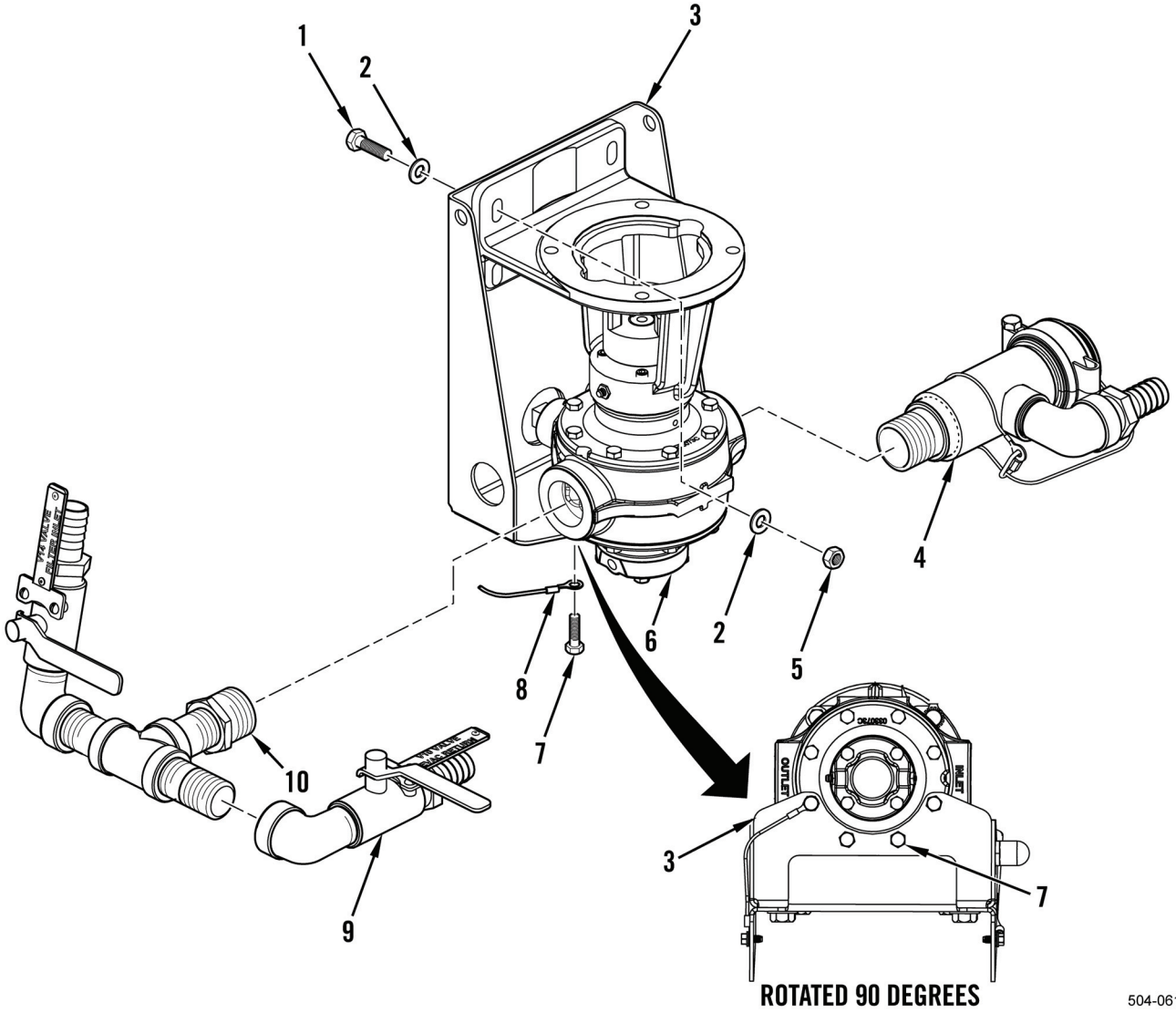


Figure 3. Fuel Pump Components.

DISASSEMBLY – CONTINUED

Bracket and Fittings – Continued

5. Remove fittings (Figure 3, Item 10) from fuel pump (Figure 3, Item 6).

END OF TASK

Pipe Fittings

NOTE

The orientation of pipe fittings will need to be marked/noted before disassembly.

1. Remove two screws (Figure 4, Item 5) and data plate (Figure 4, Item 6) from V10 valve (Figure 4, Item 7).
2. Remove elbow (Figure 4, Item 3) from V10 valve (Figure 4, Item 7).
3. Remove hose barb (Figure 4, Item 2) from V10 valve (Figure 4, Item 7).
4. Note position of lanyard (Figure 4, Item 4) on strainer (Figure 4, Item 1).
5. Remove hose barb (Figure 4, Item 2) from elbow (Figure 4, Item 3).
6. Remove elbow (Figure 4, Item 3) from strainer (Figure 4, Item 1).
7. Remove two screws (Figure 4, Item 5) and data plate (Figure 4, Item 8) from V14 valve (Figure 4, Item 7).

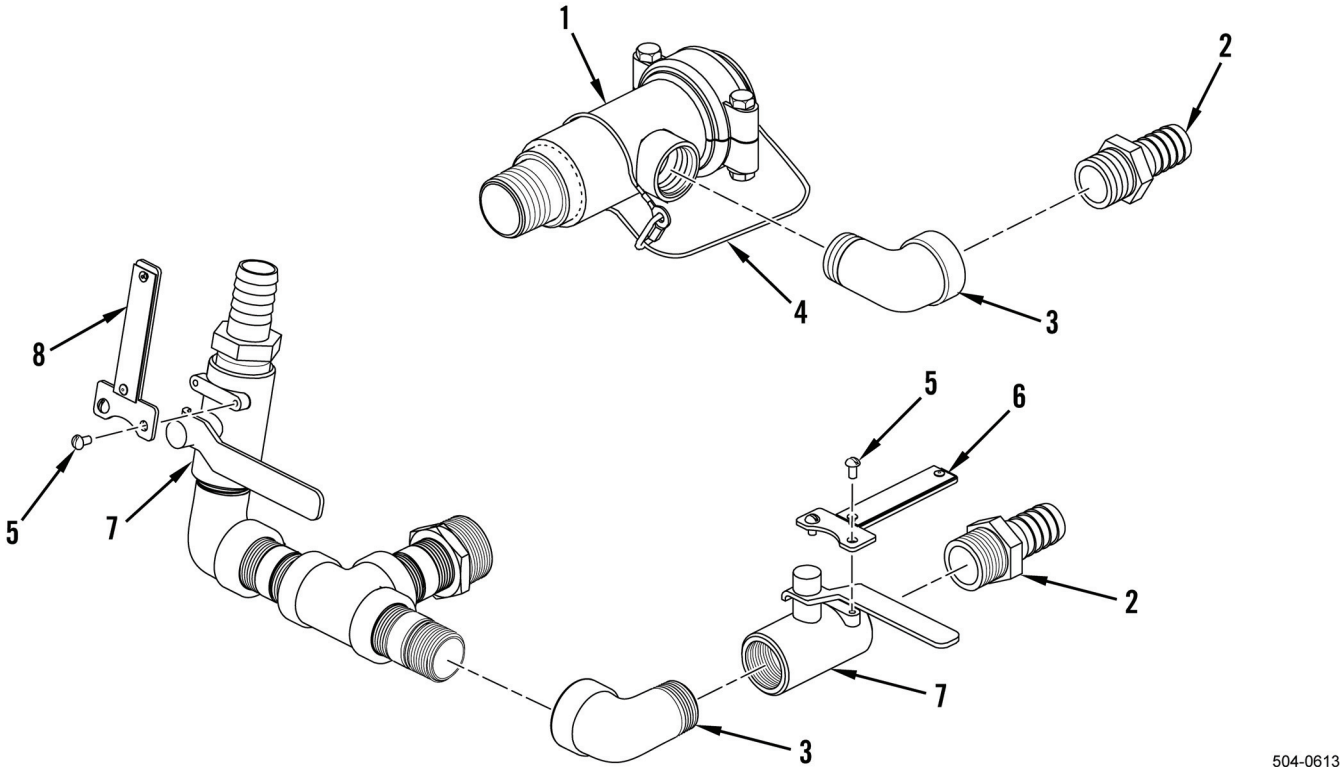


Figure 4. Pipe Fittings.

DISASSEMBLY – CONTINUED

Pipe Fittings – Continued

8. Remove V14 valve (Figure 5, Item 7) and elbow (Figure 5, Item 3) from nipple (Figure 5, Item 9) and tee (Figure 5, Item 10).
9. Remove bushing (Figure 5, Item 8) from nipple (Figure 5, Item 9).
10. Remove three nipples (Figure 5, Item 9) from tee (Figure 5, Item 10).
11. Remove elbow (Figure 5, Item 3) from V14 valve (Figure 5, Item 7).
12. Remove hose barb (Figure 5, Item 1) from V14 valve (Figure 5, Item 7).

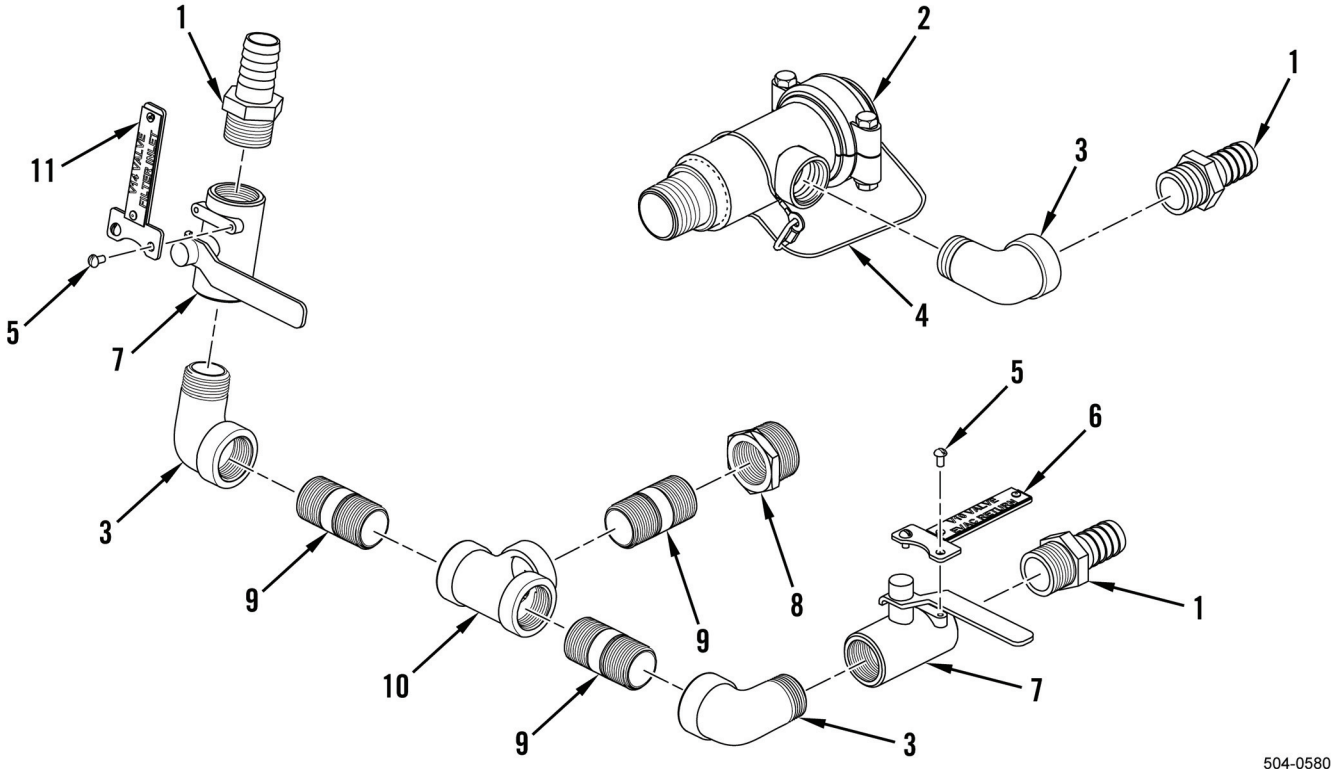


Figure 5. Pipe Fittings.

END OF TASK

ASSEMBLY

Pipe Fittings

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).

CAUTION

Do not loosen fittings to align, which can break the seal. Failure to comply may result in damage to equipment.

NOTE

The pipe fittings will need to be assembled IAW orientation noted/marked prior to disassembly.

2. Install hose barb (Figure 5, Item 1) into V14 valve (Figure 5, Item 7).
3. Install elbow (Figure 5, Item 3) into V14 valve (Figure 5, Item 7).
4. Install three nipples (Figure 5, Item 9) into tee (Figure 5, Item 10).
5. Install bushing (Figure 5, Item 8) onto nipple (Figure 5, Item 9).
6. Install V14 valve (Figure 5, Item 7) and elbow (Figure 5, Item 3) onto nipple (Figure 5, Item 9) and tee (Figure 5, Item 10).
7. Position lanyard (Figure 5, Item 4) on strainer (Figure 5, Item 2).
8. Install elbow (Figure 5, Item 3) into strainer (Figure 5, Item 2).
9. Install hose barb (Figure 5, Item 1) into elbow (Figure 5, Item 3).
10. Install hose barb (Figure 5, Item 1) into V10 valve (Figure 5, Item 7).
11. Install elbow (Figure 5, Item 3) into V10 valve (Figure 5, Item 7).
12. Install two screws (Figure 5, Item 5) and data plate (Figure 5, Item 11) on V14 valve (Figure 5, Item 7).
13. Install two screws (Figure 5, Item 5) and data plate (Figure 5, Item 6) on V10 valve (Figure 5, Item 7).

END OF TASK

ASSEMBLY – CONTINUED

Bracket and Fittings

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).

NOTE

Install strainer assembly and pipe fittings IAW orientation noted/marked prior to removal.

2. Install fittings (Figure 6, Item 10) into fuel pump (Figure 6, Item 6).
3. Install V10 valve and elbow (Figure 6, Item 9) into fittings (Figure 6, Item 10).
4. Install strainer assembly (Figure 6, Item 4) into fuel pump (Figure 6, Item 6).
5. Position fuel pump (Figure 6, Item 6) on bracket (Figure 6, Item 3).
6. Install fuel pump (Figure 6, Item 6) onto bracket (Figure 6, Item 3) with four bolts (Figure 6, Item 1), eight washers (Figure 6, Item 2), and four new locknuts (Figure 6, Item 5) hand tight.

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

7. Apply dielectric grease on bolt (Figure 6, Item 7) threads and ground strap (Figure 6, Item 8) end.
8. Install ground strap (Figure 6, Item 8) and four bolts (Figure 6, Item 7) onto fuel pump (Figure 6, Item 6) and bracket (Figure 6, Item 3). Torque four bolts to 15 lb-ft (20 Nm).
9. Torque four locknuts (Figure 6, Item 5) to 31 lb-ft (42 Nm).

ASSEMBLY – CONTINUED

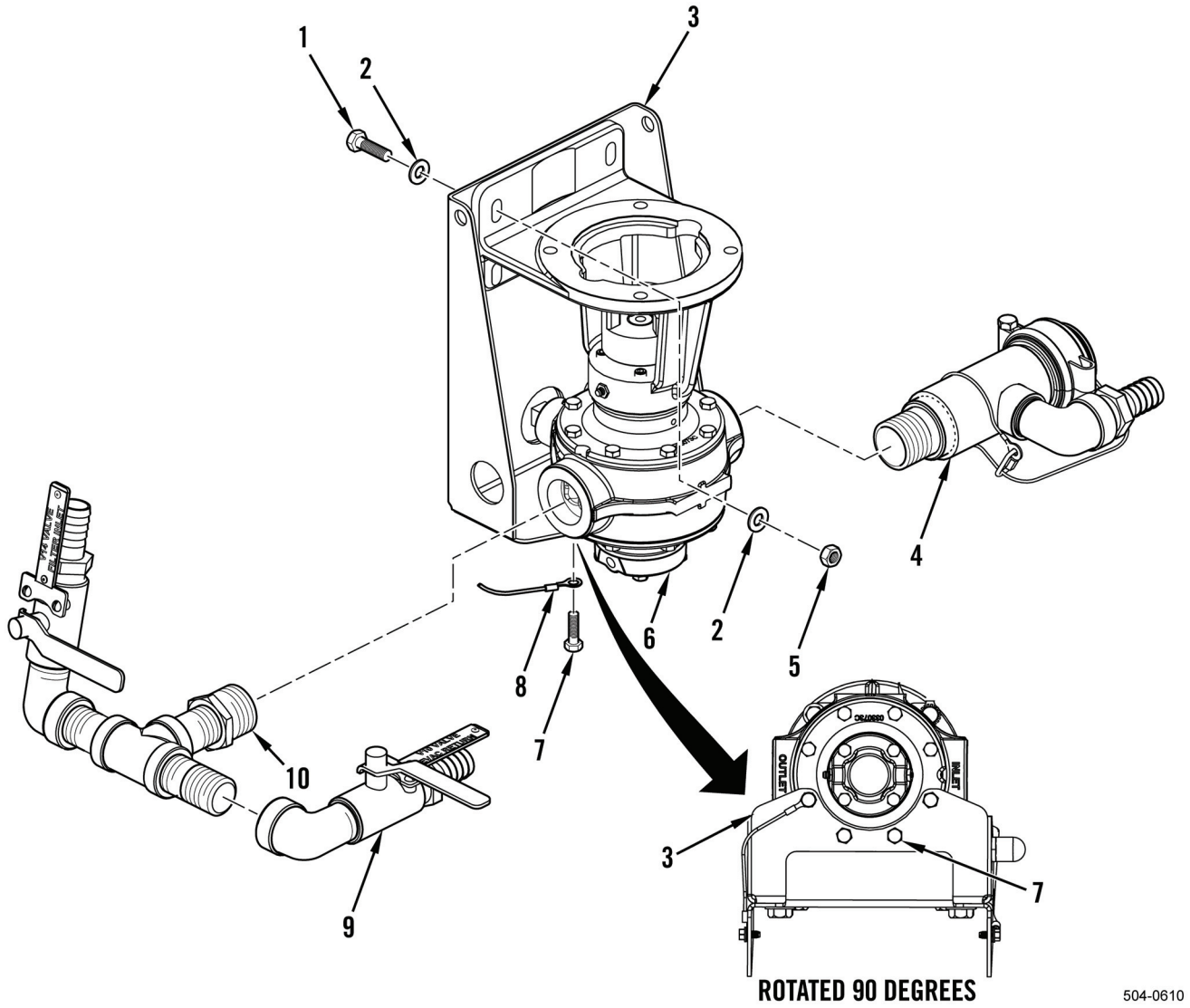


Figure 6. Fuel Pump Components.

END OF TASK

INSTALLATION

1. Assemble bracket and fittings (Bracket and Fittings task in this WP).

WARNING

Fuel pump weighs 50 lb. (23 kg). Assistance is required for removal and installation. Failure to comply may result in injury or death to personnel.

2. Position fuel pump assembly (Figure 7, Item 1) on frame mount (Figure 7, Item 8) with assistance.
3. Install four bolts (Figure 7, Item 7) and four washers (Figure 7, Item 6) to frame mount (Figure 7, Item 8) and fuel pump assembly (Figure 7, Item 1).
4. Install four nuts (Figure 7, Item 2) on four bolts (Figure 7, Item 7). Torque nuts to 75 lb-ft (101.7 Nm).

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

5. Apply dielectric grease to screw (Figure 7, Item 5) threads and jumper wire (Figure 7, Item 3) end.

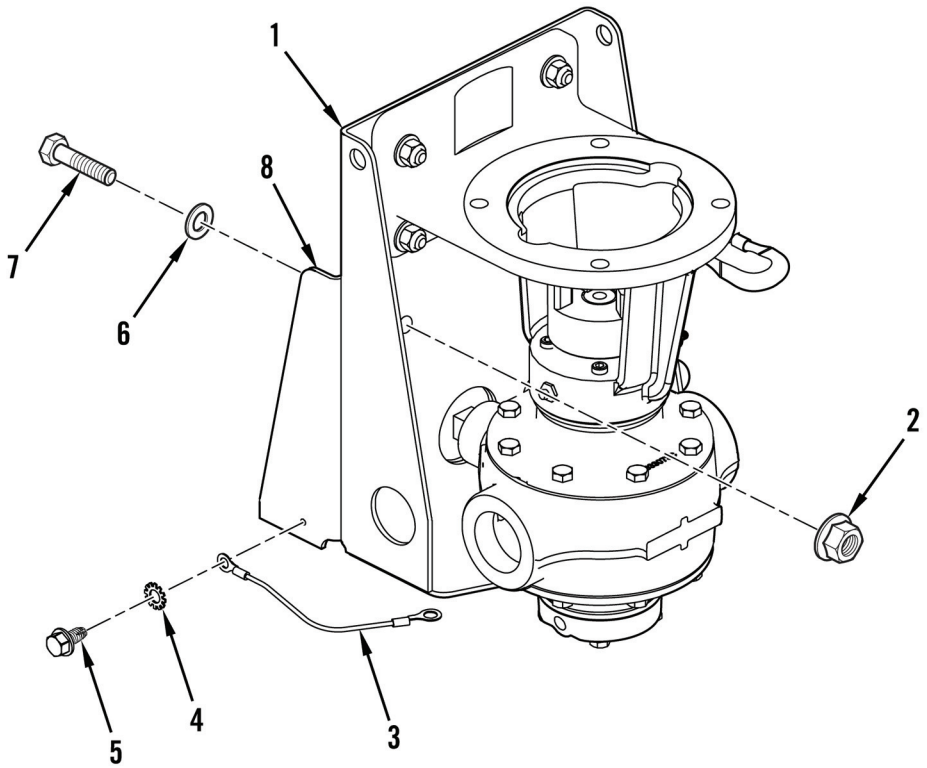


Figure 7. Fuel Pump Assembly.

INSTALLATION – CONTINUED

6. Install jumper wire (Figure 7, Item 3) to frame mount (Figure 7, Item 8) with screw (Figure 7, Item 5) and new lockwasher (Figure 7, Item 4).
7. Attach two new tiedown straps (Figure 8, Item 10) to two nipples (Figure 8, Item 11) and hose (Figure 8, Item 9).
8. Position hose clamp (Figure 8, Item 3) on hose (Figure 8, Item 4).
9. Install hose (Figure 8, Item 4) onto hose barb (Figure 8, Item 2) at fuel strainer. Tighten hose clamp (Figure 8, Item 3).
10. Position hose clamp (Figure 8, Item 14) on filter inlet hose (Figure 8, Item 1).
11. Install filter inlet hose (Figure 8, Item 1) onto hose barb (Figure 8, Item 13) on V14 valve (Figure 8, Item 12). Tighten hose clamp (Figure 8, Item 14).
12. Position hose clamp (Figure 8, Item 6) on evacuation return hose (Figure 8, Item 5).
13. Install evacuation return hose (Figure 8, Item 5) onto hose barb (Figure 8, Item 7) on V10 valve (Figure 8, Item 8). Tighten hose clamp (Figure 8, Item 6).

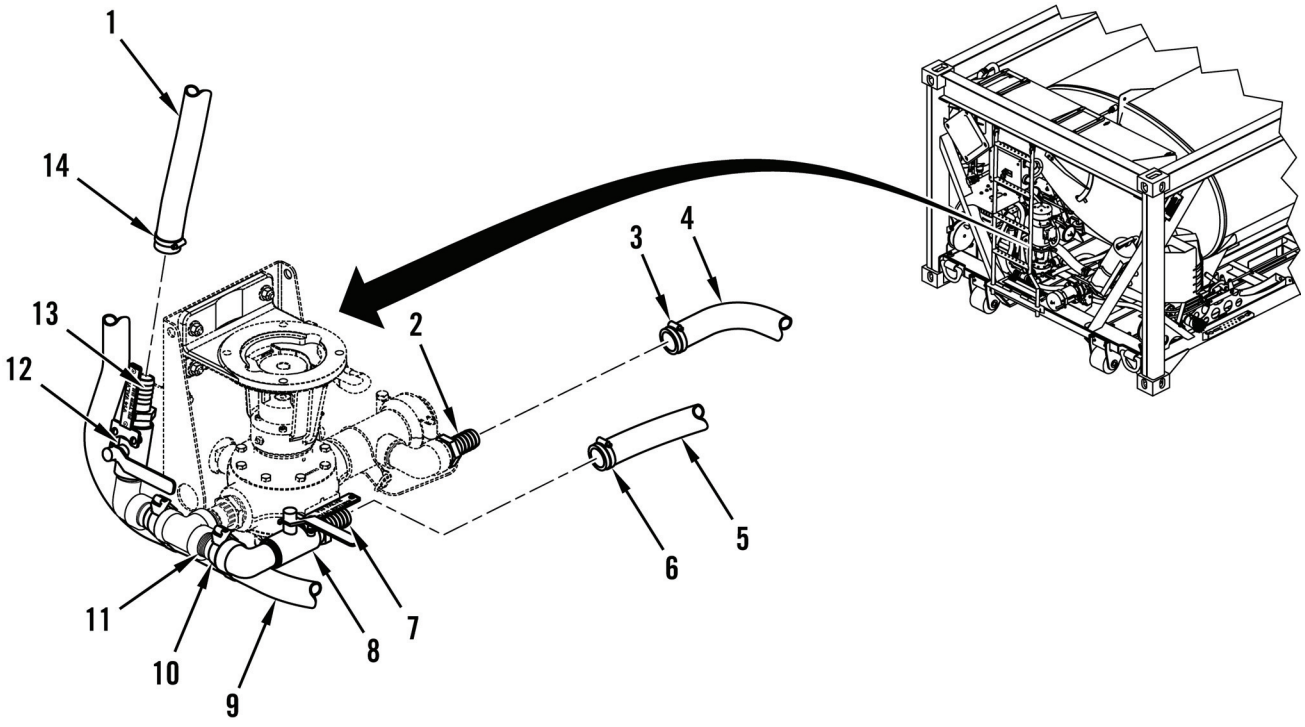


Figure 8. Fuel Pump Hoses.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install motor (WP 0058).
2. Remove drip pan and dispose of contents IAW local SOP.
3. Allow sealing compound to cure a minimum of 3 hours.
4. Wipe off excess sealing compound.
5. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL PUMP ASSEMBLY AND FLOW METER PRESERVATION
Drain Residual Fuel

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Wrench, pipe, 18 in. (WP 0182, Item 18)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)

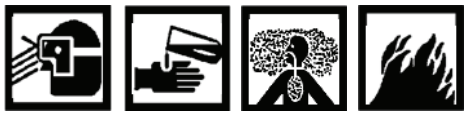
References

WP 0122

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM mounted on PLS trailer (TM 10-4930-370-10)

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

NOTE

Refer to TRM Controls and Indicators (TM 10-4930-370-10) for location of ports, valves, and connection points.

DRAIN RESIDUAL FUEL FROM FUEL PUMP ASSEMBLY AND FLOW METER

1. Position ladder to access TRM deck (TM 10-4930-370-10).
2. Close all valves (V1-V16).

DRAIN RESIDUAL FUEL FROM FUEL PUMP ASSEMBLY AND FLOW METER – CONTINUED

3. Place drip pan under 1 in. (2.54 cm) drain plug (Figure 1, Item 8) and rear discharge pipe tee (Figure 1, Item 7) on fuel pump inlet hose.
4. Open discharge valves V3 (Figure 1, Item 1), V4 (Figure 1, Item 4), V8 (Figure 1, Item 3) and V9 (Figure 1, Item 2).
5. Remove drain plug (Figure 1, Item 8) slowly at discharge pipe tee (Figure 1, Item 7).
6. Place a suitable container under vacuum breaker VB2 (Figure 1, Item 6).
7. Open discharge valve V7 (Figure 1, Item 5) and vacuum breaker VB2 (Figure 1, Item 6).
8. Drain fuel until steady flow stops and becomes drops.
9. Close valves V3, V4, V7, V8, V9, and VB2.
10. Prepare all male and female threads of rear discharge pipe tee (Figure 1, Item 7) and drain plug (Figure 1, Item 8) with primer and sealer (WP 0122).
11. Install 1 in. (2.54 cm) drain plug (Figure 1, Item 8) in rear discharge pipe tee (Figure 1, Item 7).
12. Remove drip pan and suitable container, and dispose of contents IAW local SOP.
13. Stow ladder (TM 10-4930-370-10).

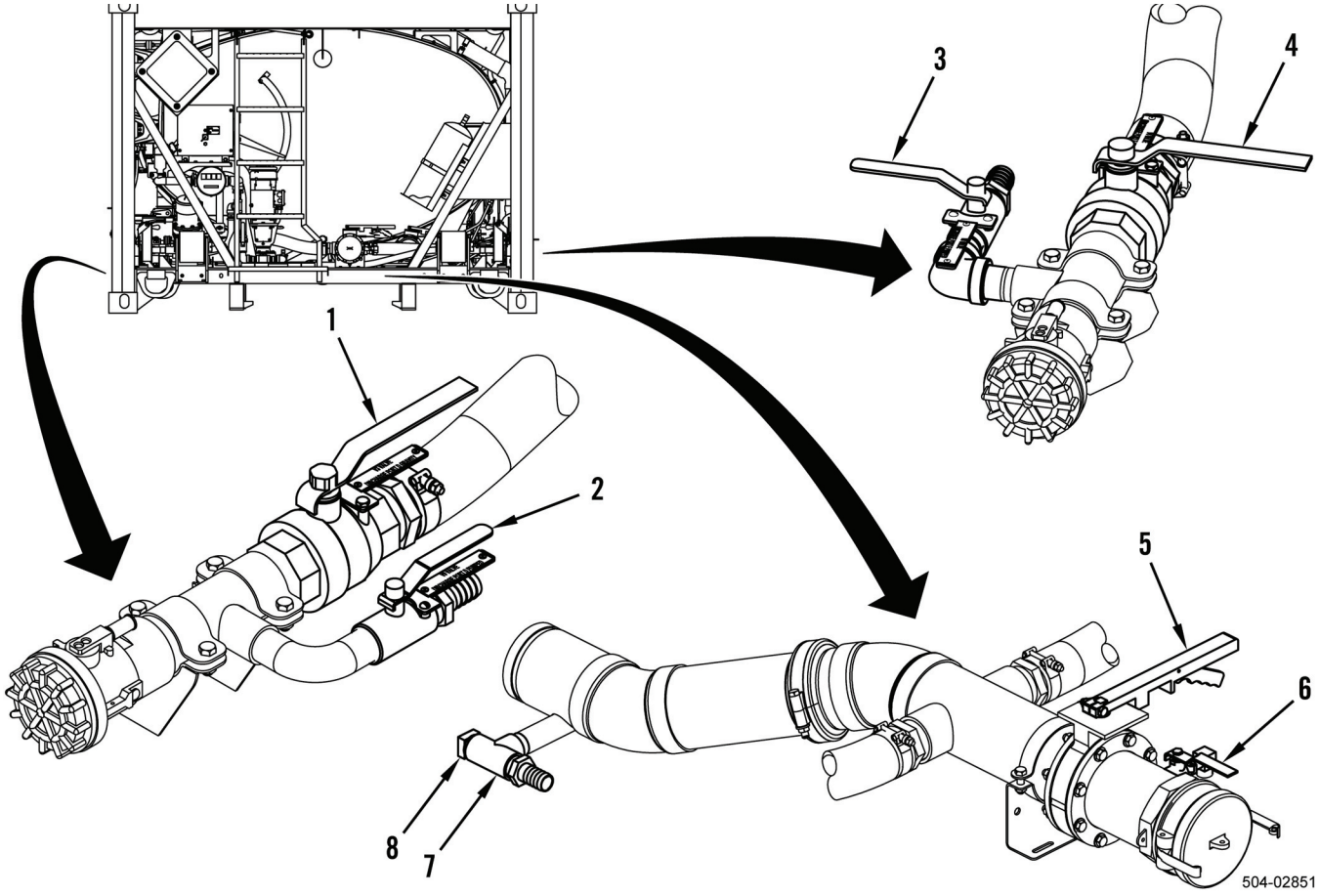


Figure 1. Drain Fuel Pump Assembly and Flow Meter.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FUEL PUMP STRAINER REPLACEMENT
Removal, Inspection, Cleaning, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Corrosion preventive compound (WP 0181, Item 5)
Grease, general purpose (WP 0181, Item 11)

References

WP 0131

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

1. Place suitable container under fuel strainer assembly to capture any residual fuel.
2. Remove two bolts (Figure 1, Item 2), two nuts (Figure 1, Item 6), and clamp (Figure 1, Item 1) from fuel pump strainer assembly (Figure 1, Item 3).
3. Remove cap (Figure 1, Item 8) and gasket (Figure 1, Item 7) from fuel pump strainer assembly (Figure 1, Item 3).
4. Remove strainer (Figure 1, Item 5) from fuel pump strainer assembly (Figure 1, Item 3).
5. Remove O-ring (Figure 1, Item 4) from strainer (Figure 1, Item 5).

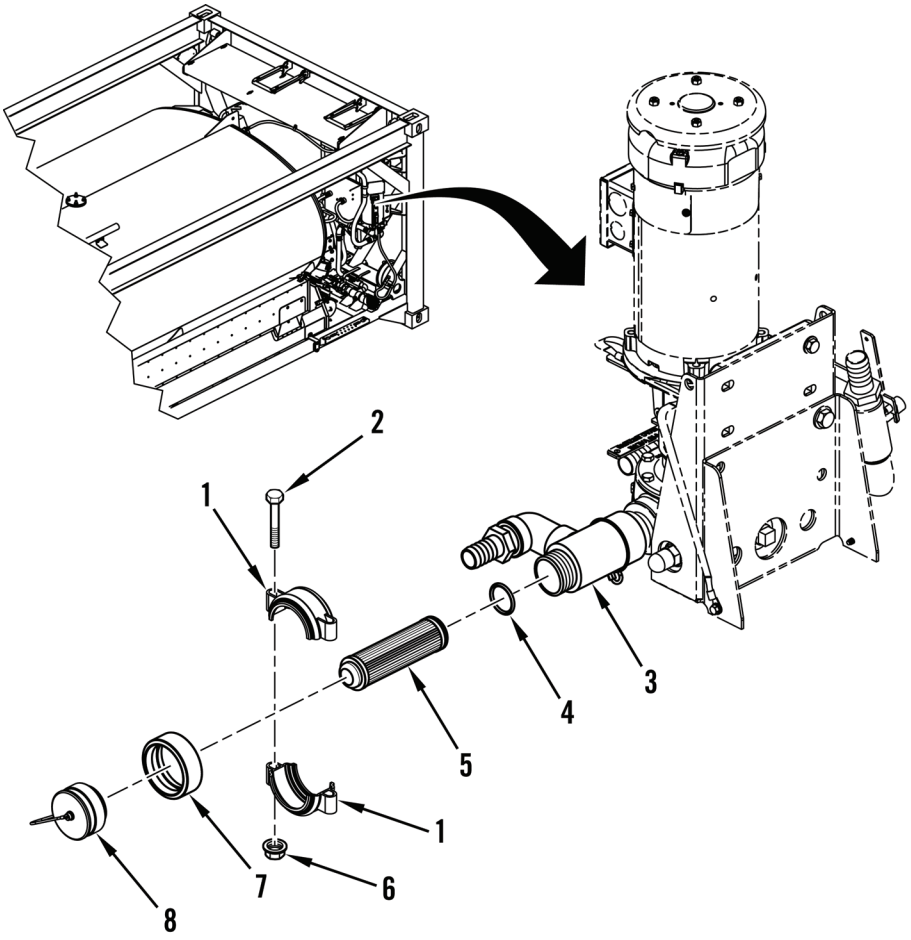


Figure 1. Fuel Pump Strainer.

END OF TASK

INSPECTION

1. Ensure strainer (Figure 1, Item 5) is not damaged or torn. Replace strainer if damaged or torn.
2. Ensure strainer (Figure 1, Item 5) is free of dirt or debris. Clean dirt or debris from strainer (Cleaning task in this WP).
3. Ensure O-ring (Figure 1, Item 4) is not damaged or torn. Replace O-ring if damaged or torn.

END OF TASK

CLEANING

1. Tap strainer (Figure 1, Item 5) gently on a hard surface to remove dirt or debris.
2. Clean strainer (Figure 1, Item 5) with a soft cleaning cloth to remove dirt or debris.
3. Rinse strainer (Figure 1, Item 5) in clean fuel until free of dirt or debris.
4. Dispose of cleaning cloth and fuel IAW local SOP.

END OF TASK

INSTALLATION

1. Lubricate O-ring (Figure 1, Item 4) lightly with grease.
2. Install O-ring (Figure 1, Item 4) on strainer (Figure 1, Item 5).
3. Install strainer (Figure 1, Item 5) and O-ring (Figure 1, Item 4) in fuel pump strainer assembly (Figure 1, Item 3).
4. Install cap (Figure 1, Item 8) and gasket (Figure 1, Item 7) on fuel pump strainer assembly (Figure 1, Item 3).

WARNING

Corrosion preventive compound is toxic and an irritant to eyes, skin, and respiratory system. Goggles and gloves must be worn when working with corrosion preventive compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If corrosion preventive compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If corrosion preventive compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury or death to personnel.

5. Apply a thin coat of corrosion preventive compound to threads of two bolts (Figure 1, Item 2), and two nuts (Figure 1, Item 6) and install clamp (Figure 1, Item 1) on fuel pump strainer assembly (Figure 1, Item 3).

WARNING

Bolts must be tightened equally to prevent leaks. Failure to comply may result in injury or death to personnel.

6. Tighten two bolts (Figure 1, Item 2) and two nuts (Figure 1, Item 6).
7. Remove suitable container and dispose of contents IAW local SOP.
8. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

MOTOR ASSEMBLY REPLACEMENT
Removal, Installation, Adjustment

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)
Wrench, torque, dial, 1/4 in. drive, 30 in-lb (WP 0182, Item 22)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Grease, electrically conductive (WP 0181, Item 9)
Sealing compound (WP 0181, Item 21)
Wire marker books (WP 0181, Item 23)
Nut, self-locking, hexagon (WP 0130, Item 16) Qty: 4

Materials/Parts – Continued

Nut, self-locking, hexagon (WP 0136, Item 69) Qty: 2
Tie, cable (WP 0136, Item 65) Qty: 2
Washer, lock (WP 0130, Item 10) Qty: 6
Washer, lock (WP 0130, Item 14) Qty: 3
Washer, lock (WP 0136, Item 66) Qty: 4

References

WP 0055
WP 0059
WP 0130
WP 0132
WP 0136

Equipment Condition

ISO rack ladder removed (WP 0120)

WARNING

- Ensure all sources of power are disconnected from the TRM before proceeding with maintenance.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

Motor Removal

CAUTION

Sealing compound on conduit box cover must be cut before cover removal. Failure to comply may result in damage to equipment.

1. Cut sealing compound on cover (Figure 1, Item 4) and conduit box (Figure 1, Item 2).
2. Remove two screws (Figure 1, Item 3) and cover (Figure 1, Item 4) from conduit box (Figure 1, Item 2) on motor (Figure 1, Item 1).
3. Inspect cover (Figure 1, Item 4) gaskets for damage. Remove and replace gaskets if they are damaged (WP 0059).
4. Pull bundle of wires gently from conduit box (Figure 1, Item 2).
5. Remove cable ties (Figure 1, Item 7) from four wire boots (Figure 1, Item 8), and slide four wire boots back until wires (Figure 1, Items 9 and 13) are exposed. Discard cable ties.

NOTE

Tag wires prior to removal to aid in installation.

6. Remove two bolts (Figure 1, Item 5), four nuts (Figure 1, Item 11), two locknuts (Figure 1, Item 14), and four lockwashers (Figure 1, Item 10) from conduit wires (Figure 1, Item 9), capacitor (Figure 1, Item 12), and motor wires (Figure 1, Item 13). Discard locknuts and lockwashers.
7. Inspect four wire boots (Figure 1, Item 8) for damage. Remove and replace any damaged wire boot (WP 0059).
8. Remove two wire boots (Figure 1, Item 8) from conduit wires (Figure 1, Item 9).
9. Remove inner conduit nut (Figure 1, Item 6) from conduit box (Figure 1, Item 2). Feed conduit wires (Figure 1, Item 9) through opening in conduit box (Figure 1, Item 2) and conduit nut (Figure 1, Item 6).

NOTE

- Two bolts of the four bolts securing the motor also secure ground straps to the motor and pump. There are no flat washers on the bolts, but there is an additional lockwasher for each bolt/ground strap combination.
- There are two endplates (Figure 1, Item 19) under the lip of the pump that can come loose when the motor hardware is removed. Note orientation before removing them if they are loose.

10. Remove two bolts (Figure 1, Item 17), four lockwashers (Figure 1, Item 15), and two ground straps (Figure 1, Item 16) from motor (Figure 1, Item 1). Discard lockwashers.
11. Remove two bolts (Figure 1, Item 17), washers (Figure 1, Item 18), and lockwashers (Figure 1, Item 15) from motor (Figure 1, Item 1). Discard lockwashers.

REMOVAL – CONTINUED

Motor Removal – Continued

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

12. Remove motor (Figure 1, Item 1) from pump (Figure 1, Item 20).

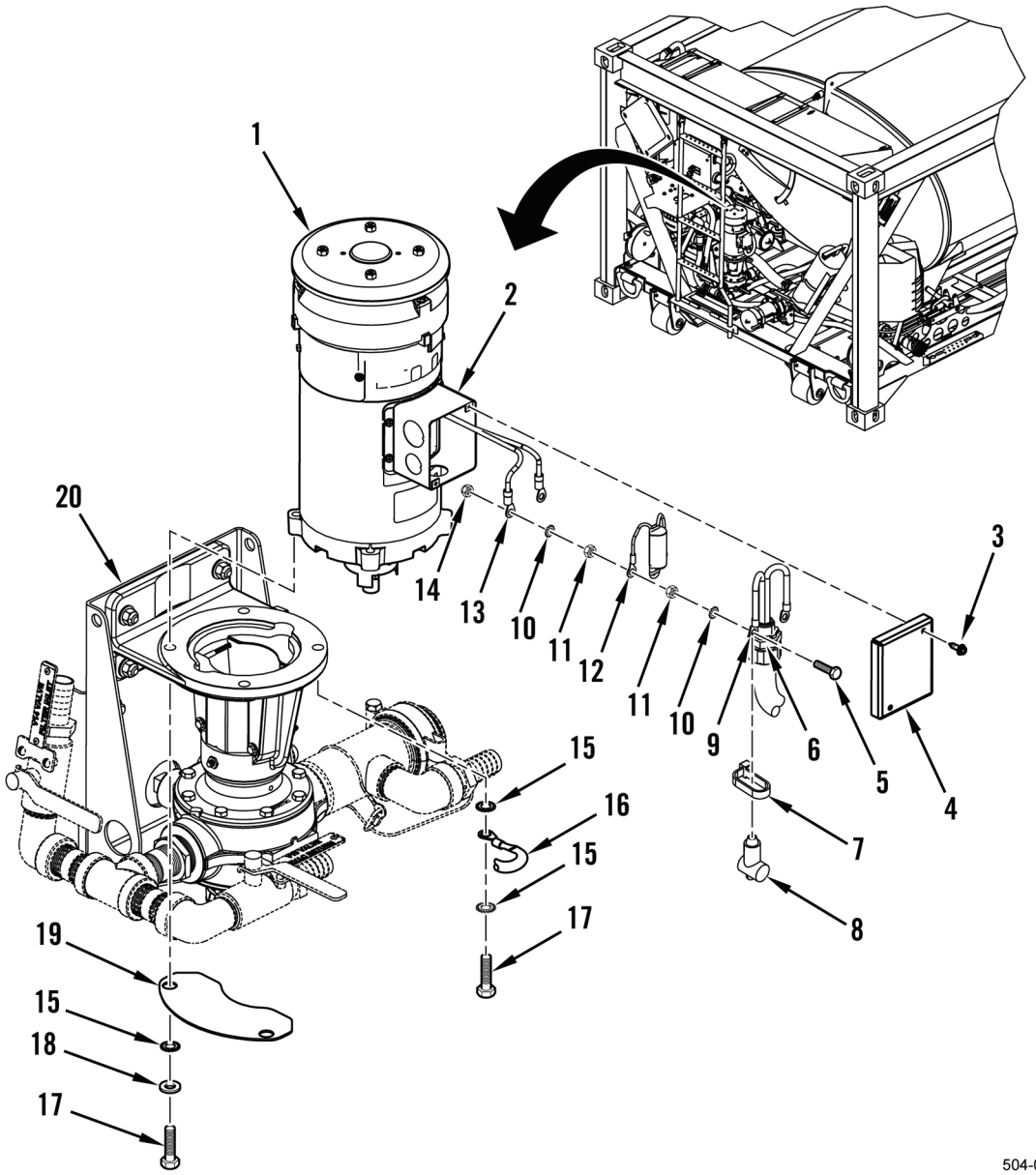


Figure 1. Motor Assembly.

REMOVAL – CONTINUED

Motor Removal – Continued

13. Remove flexible coupling (Figure 2, Item 11) from coupling (Figure 2, Item 13) or pump (Figure 2, Item 8).
14. Remove bolt (Figure 2, Item 9), flat washer (Figure 2, Item 6), three lockwashers (Figure 2, Item 3), ground strap (Figure 2, Item 4), and locknut (Figure 2, Item 5) from two sideplates (Figure 2, Item 7). Discard locknut and lockwashers.
15. Remove three bolts (Figure 2, Item 9), six washers (Figure 2, Item 6), three locknuts (Figure 2, Item 5), two sideplates (Figure 2, Item 7), and two endplates (Figure 2, Item 10) (if not previously removed) from fuel pump (Figure 2, Item 8). Discard locknuts.
16. Proceed to step 17 if not replacing motor.

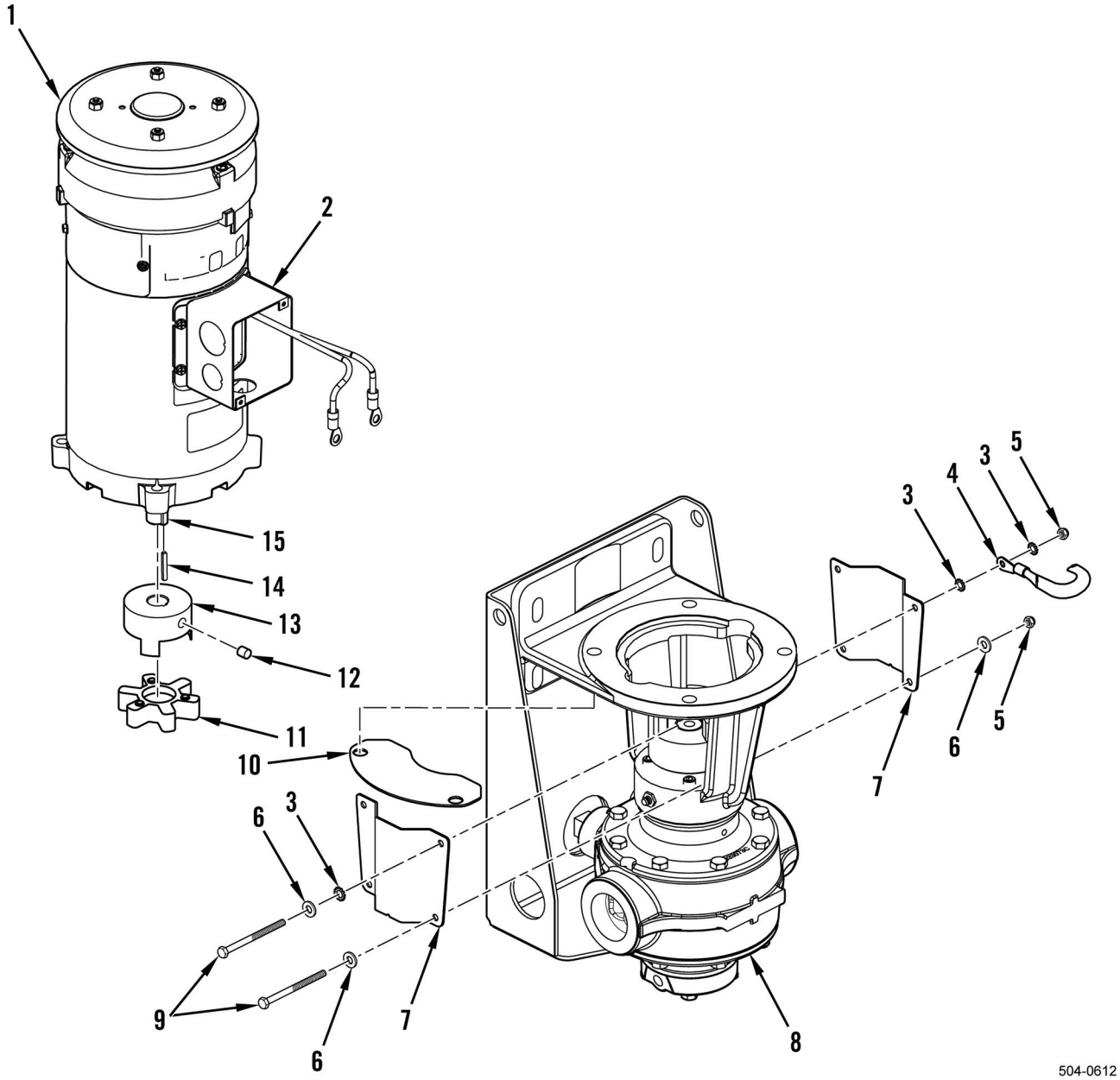


Figure 2. Coupling Gap.

REMOVAL – CONTINUED

Motor Removal – Continued

17. Remove coupling (Figure 2, Item 13) from motor only if replacing motor with a new motor (Coupling Removal task in this WP).Inspect coupling (Figure 2, Item 13) for damage and replace if damaged (Coupling Removal task in this WP).
18. Inspect pump (Figure 2, Item 8) for damage and replace pump (WP 0055) if damaged.

END OF TASK

Coupling Removal

1. Remove motor (Motor Removal task in this WP).
2. Loosen set screw (Figure 2, Item 12) on coupling (Figure 2, Item 13).

CAUTION

Position motor to prevent damaging wires and conduit box (Figure 2, Item 2) when removing coupling from shaft. Failure to comply may result in damage to equipment.

3. Pry coupling (Figure 2, Item 13) from shaft (Figure 2, Item 15).
4. Remove key (Figure 2, Item 14) if key is loose.
5. Inspect key (Figure 2, Item 14) for damage and replace if damaged.
6. Inspect coupling (Figure 2, Item 13) for damage and replace if damaged.
7. Inspect flexible coupling (Figure 2, Item 11) for damage and replace if damaged.
8. Inspect coupling of pump (Figure 2, Item 8) and pump for damage and replace pump (WP 0055) if damaged.

END OF TASK

INSTALLATION

Coupling Installation

1. Install key (Figure 2, Item 14) if removed.

CAUTION

Ensure key of motor shaft is properly aligned with key in coupling. Failure to comply may result in damage to equipment.

2. Install coupling (Figure 2, Item 13) loose onto shaft (Figure 2, Item 15).
3. Install flexible coupling (Figure 2, Item 11) into coupling (Figure 2, Item 13).
4. Hold flexible coupling (Figure 2, Item 11) tight to top of coupling (Figure 2, Item 13) while sliding coupling down on motor shaft (Figure 2, Item 15) until bottom of flexible coupling touches end of shaft (Figure 2, Item 15).
5. Tighten set screw (Figure 2, Item 12).
6. Install motor (Motor Installation task in this WP).

END OF TASK

Motor Installation

1. Position flexible coupling (Figure 2, Item 11) into coupling of pump (Figure 2, Item 8).
2. Position motor (Figure 2, Item 1) so it engages flexible coupling (Figure 2, Item 11) and coupling of pump (Figure 2, Item 8).

INSTALLATION – CONTINUED

Motor Installation – Continued

3. Install two bolts (Figure 3, Item 17), washers (Figure 3, Item 18), new lockwashers (Figure 3, Item 15), endplate (Figure 3, Item 19), and motor (Figure 3, Item 1) onto pump (Figure 3, Item 20).

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

4. Apply dielectric grease to ends of two ground straps (Figure 3, Item 16).
5. Install two bolts (Figure 3, Item 17), four new lockwashers (Figure 3, Item 15), and two ground straps (Figure 3, Item 16) in motor (Figure 3, Item 1) and pump (Figure 3, Item 20). Torque four bolts (Figure 3, Item 17) to 31 lb-ft (42 Nm).

NOTE

New motor will need bottom knockout of the conduit box removed.

6. Feed conduit wires (Figure 3, Item 9) through opening in conduit box (Figure 3, Item 2) and through conduit nut (Figure 3, Item 6).
7. Install inner conduit nut (Figure 3, Item 6) on conduit box (Figure 3, Item 2), and tighten.
8. Install two wire boots (Figure 3, Item 8) onto conduit wires (Figure 3, Item 9), and push back until terminal ends are exposed.
9. Install bolt (Figure 3, Item 5), two nuts (Figure 3, Item 11), new locknut (Figure 3, Item 14), and two new lockwashers (Figure 3, Item 10) in black conduit wire (Figure 3, Item 9), capacitor (Figure 3, Item 12), and black motor wire (Figure 3, Item 13).
10. Install bolt (Figure 3, Item 5), two nuts (Figure 3, Item 11), new locknut (Figure 3, Item 14), and two new lockwashers (Figure 3, Item 10) in red conduit wire (Figure 3, Item 9), capacitor (Figure 3, Item 12), and red motor wire (Figure 3, Item 13).

CAUTION

Ensure each connection point (nut to nut, bolt to nut) is tight before positioning wire boots. Ensure capacitor is oriented correctly. Failure to comply may result in damage to equipment.

11. Position four wire boots (Figure 3, Item 8) over wires (Figure 3, Items 9 and 13) and secure all four boots with two new cable ties (Figure 3, Item 7).
12. Position wire bundle into conduit box (Figure 3, Item 2).
13. Remove old sealing compound from cover (Figure 3, Item 4) and conduit box (Figure 3, Item 2).

CAUTION

Make sure slot in cover faces down. Failure to comply may result in damage to equipment.

14. Install two screws (Figure 3, Item 3) and cover (Figure 3, Item 4) in conduit box (Figure 3, Item 2) on motor (Figure 3, Item 1).

INSTALLATION – CONTINUED

Motor Installation – Continued

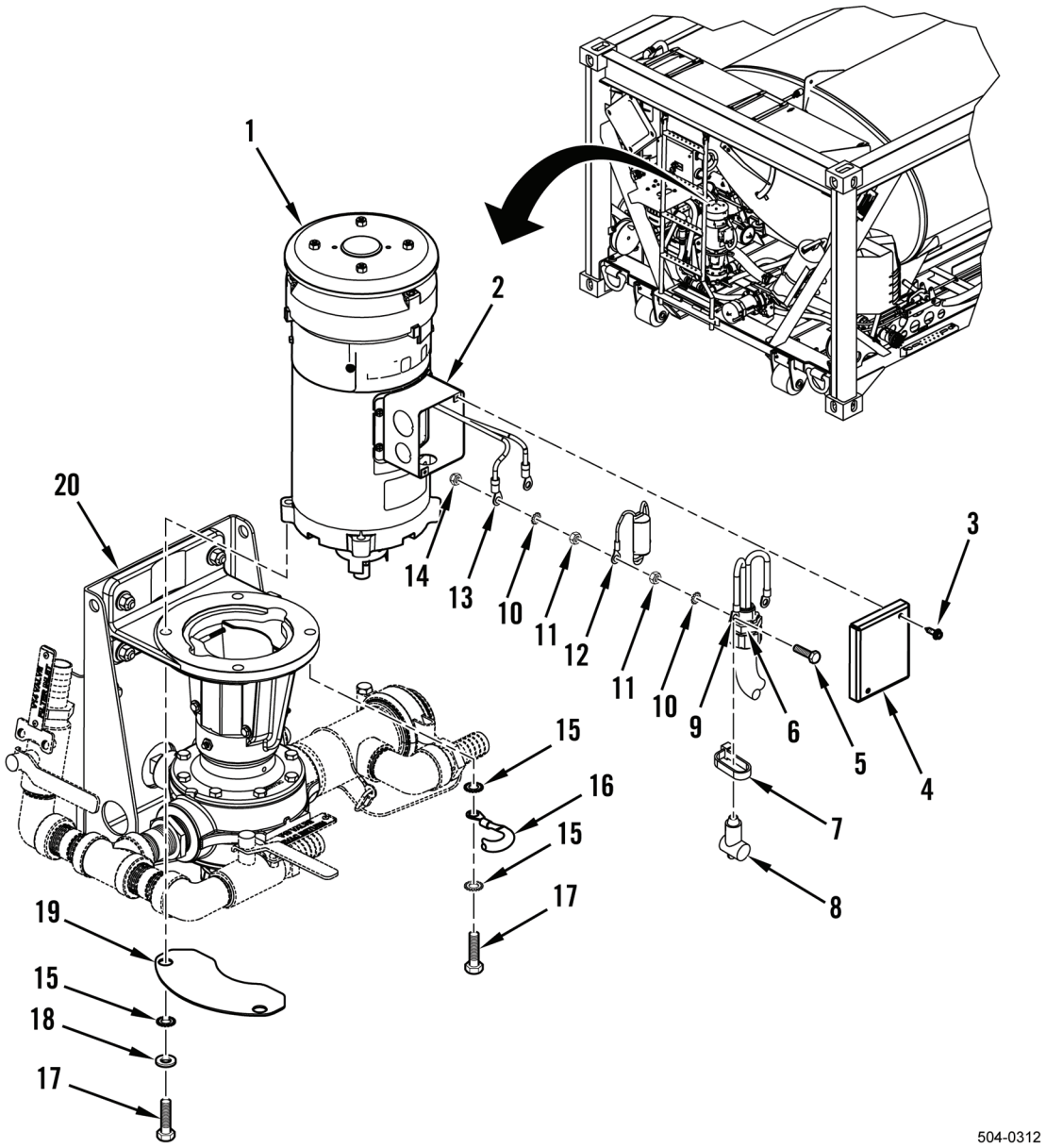


Figure 3. Motor Assembly.

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

15. Apply sealing compound to top and sides of cover (Figure 3, Item 4).

INSTALLATION – CONTINUED

Motor Installation – Continued

16. Adjust coupling gap if new motor, pump, or coupling has been installed (Coupling Gap Adjustment task in this WP).

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

17. Apply dielectric grease to bolt (Figure 4, Item 9) threads and ground strap (Figure 4, Item 2) end.
18. Install ground strap (Figure 4, Item 2) and sideplates (Figure 4, Item 5) on fuel pump (Figure 4, Item 8) with bolt (Figure 4, Item 9), flat washer (Figure 4, Item 4), three new lockwashers (Figure 4, Item 1), and new locknut (Figure 4, Item 3).
19. Install three bolts (Figure 4, Item 9), six washers (Figure 4, Item 4), and three new locknuts (Figure 4, Item 3) into two sideplates (Figure 4, Item 5) on fuel pump (Figure 4, Item 8).
20. Torque four bolts (Figure 4, Item 9) to 20 lb-inch (2.25 Nm).

END OF TASK

ADJUSTMENT

Coupling Gap Adjustment

NOTE

Use blades of feeler gauge to achieve 0.0625 in. (1.5875 mm) size.

1. Check gap (Figure 4, Item 7) between coupling (Figure 4, Item 6) halves for approximately 0.0625 in. (1.5875 mm) clearance.
2. Loosen coupling (Figure 4, Item 6) setscrew and move coupling up or down motor shaft until approximately 0.0625 in. (1.5875 mm) clearance is achieved.

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

3. Apply dielectric grease to bolt (Figure 4, Item 9) threads and ground strap (Figure 4, Item 2) end.
4. Install ground strap (Figure 4, Item 2) and sideplates (Figure 4, Item 5) on fuel pump (Figure 4, Item 8) with bolt (Figure 4, Item 9), flat washer (Figure 4, Item 4), three new lockwashers (Figure 4, Item 1), and new locknut (Figure 4, Item 3).

ADJUSTMENT – CONTINUED

Coupling Gap Adjustment – Continued

5. Install three bolts (Figure 4, Item 9), six washers (Figure 4, Item 4), and three new locknuts (Figure 4, Item 3) into two sideplates (Figure 4, Item 5) on fuel pump (Figure 4, Item 8).
6. Torque four bolts (Figure 4, Item 9) to 20 lb-inch (2.25 Nm).

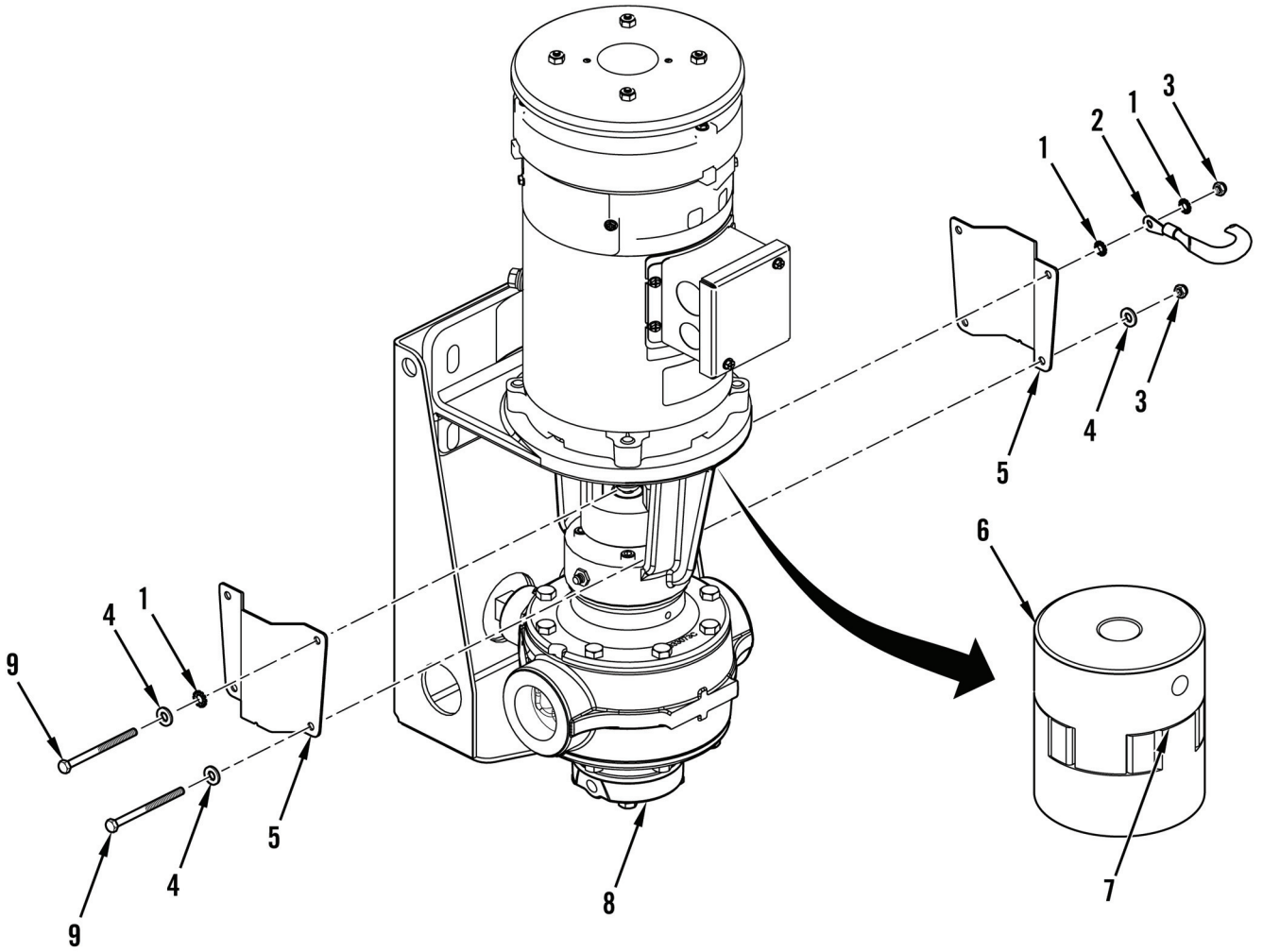


Figure 4. Coupling Gap.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ISO rack ladder (WP 0120).
2. Operate TRM (TM 10-4930-370-10) and check for proper operation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

MOTOR ASSEMBLY REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Cleaning compound, solvent (WP 0181, Item 2)
Sealing compound (WP 0181, Item 21)
Wire marker books (WP 0181, Item 23)
Gasket (WP 0132, Item 2) Qty: 2

Materials/Parts – Continued

Gasket (WP 0132, Item 3) Qty: 2
Nut, self-locking, hexagon (WP 0136, Item 69) Qty: 2
Tie, cable (WP 0136, Item 65) Qty: 2
Washer, lock (WP 0136, Item 66) Qty: 4

References

WP 0132
WP 0136

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Ensure all sources of power are disconnected from the TRM before proceeding with maintenance.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

DISASSEMBLY

Cover Removal

CAUTION

Sealing compound on conduit box cover must be cut before cover removal. Failure to comply may result in damage to equipment.

1. Cut sealing compound on cover (Figure 1, Item 4) and conduit box (Figure 1, Item 2).
2. Remove two screws (Figure 1, Item 3) and cover (Figure 1, Item 4) from conduit box (Figure 1, Item 2) on motor (Figure 1, Item 1).
3. Remove four gaskets (Figure 1, Item 5) from cover (Figure 1, Item 4).

END OF TASK

Wire Boots Removal

1. Remove two screws (Figure 1, Item 3) and cover (Figure 1, Item 4) from conduit box (Figure 1, Item 2) on motor (Figure 1, Item 1).
2. Pull bundle of wires gently from conduit box (Figure 1, Item 2).
3. Remove cable ties (Figure 1, Item 7) from four wire boots (Figure 1, Items 8 and 13), and slide four wire boots back on wires (Figure 1, Items 9 and 14). Discard cable ties.

NOTE

Tag wires prior to removal to aid in installation.

4. Remove two bolts (Figure 1, Item 6), four nuts (Figure 1, Item 11), two locknuts (Figure 1, Item 15), and four lockwashers (Figure 1, Item 10) from conduit wires (Figure 1, Item 9), capacitor (Figure 1, Item 12), and motor wires (Figure 1, Item 14). Discard locknuts and lockwashers.
5. Remove four wire boots (Figure 1, Items 8 and 13) from wires (Figure 1, Items 9 and 14).

END OF TASK

CLEANING

WARNING

Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

1. Remove gasket (Figure 1, Item 5) and sealing compound debris from cover (Figure 1, Item 4) and conduit box (Figure 1, Item 2).
2. Clean cover (Figure 1, Item 4) with cleaning cloth and solvent cleaning compound.
3. Allow cover to dry thoroughly.

END OF TASK

ASSEMBLY

Wire Boots Installation

1. Install four wire boots (Figure 1, Items 8 and 13) onto wires (Figure 1, Items 9 and 14).
2. Install bolt (Figure 1, Item 6), two nuts (Figure 1, Item 11), new locknut (Figure 1, Item 15), and two new lockwashers (Figure 1, Item 10) in black conduit wire (Figure 1, Item 9), capacitor (Figure 1, Item 12), and black motor wire (Figure 1, Item 14).
3. Install bolt (Figure 1, Item 6), two nuts (Figure 1, Item 11), new locknut (Figure 1, Item 15), and two new lockwashers (Figure 1, Item 10) in red conduit wire (Figure 1, Item 9), capacitor (Figure 1, Item 12), and red motor wire (Figure 1, Item 14).

CAUTION

Ensure each connection point (nut to nut, bolt to nut) is tight before positioning wire boots. Ensure capacitor is oriented correctly. Failure to comply may result in damage to equipment.

4. Position four wire boots (Figure 1, Items 8 and 13) over wires (Figure 1, Items 9 and 14) and secure all four boots with two new cable ties (Figure 1, Item 7).
5. Position wire bundle into conduit box (Figure 1, Item 2).

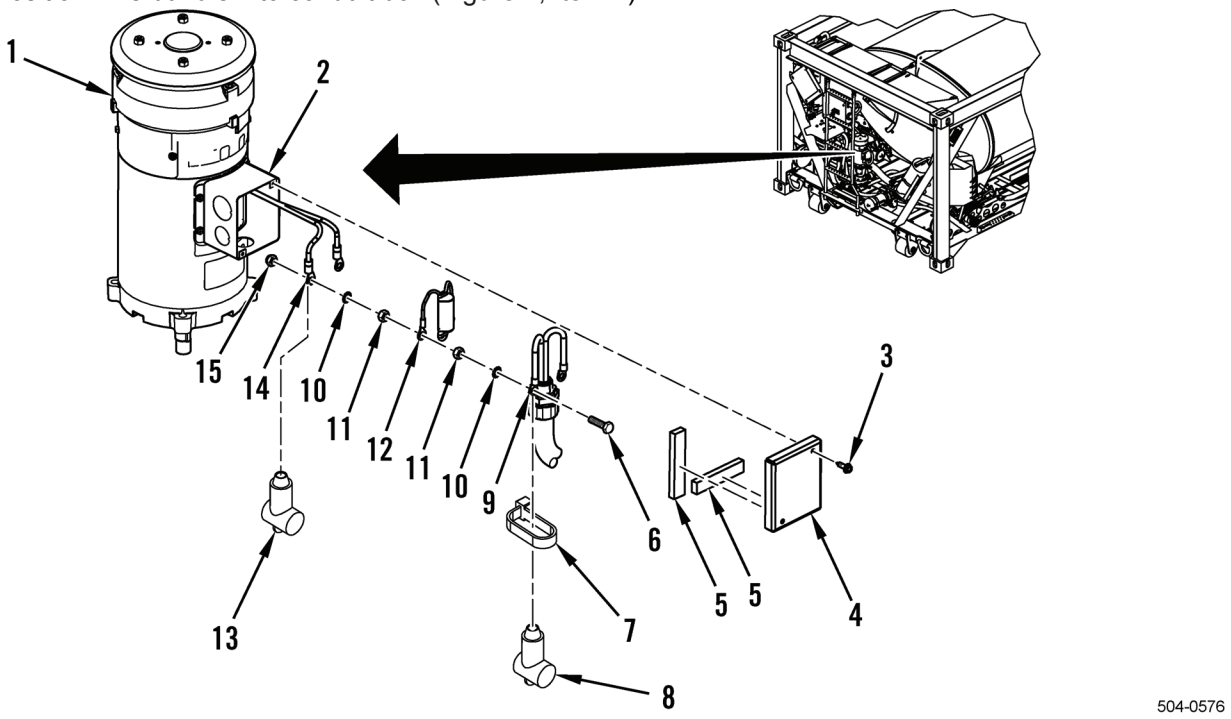


Figure 1. Motor Assembly.

END OF TASK

Cover Installation

1. Install four gaskets (Figure 1, Item 5) onto cover (Figure 1, Item 4).
2. Remove old sealing compound from cover (Figure 1, Item 4) and conduit box (Figure 1, Item 2).

CAUTION

Make sure slot in cover faces down and do not pinch wires. Failure to comply may result in damage to equipment.

3. Install two screws (Figure 1, Item 3) and cover (Figure 1, Item 4) in conduit box (Figure 1, Item 2) on motor (Figure 1, Item 1).

DISASSEMBLY – CONTINUED

Cover Installation – Continued

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

4. Apply sealing compound to top and sides of cover (Figure 1, Item 4).
5. Operate TRM (TM 10-4930-370-10) and check for proper operation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FLOW METER REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Vise, machinist's, 4 in. (WP 0182, Item 13)
Wrench, pipe, 10 in. (WP 0182, Item 17)
Wrench, pipe, 18 in. (WP 0182, Item 18)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Nipple (WP 0133, Item 13)
Nut, self-locking, hexagon (WP 0133, Item 6)
Qty: 4

Personnel Required

Two

References

WP 0122
WP 0133

Equipment Condition

ISO rack ladder removed (WP 0120)
Air eliminator removed (WP 0063)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

Meter

1. Place suitable container under discharge pipes (Figure 1, Item 8).
2. Loosen two hose clamps (Figure 1, Item 10) and remove two hoses (Figure 1, Item 11) from two barb fittings (Figure 1, Item 9) on discharge pipes (Figure 1, Item 8).
3. Place suitable container under filter/separator pipe (Figure 1, Item 21).
4. Loosen hose clamp (Figure 1, Item 24) and remove hose (Figure 1, Item 25) from barb fitting (Figure 1, Item 9) on filter/separator pipe (Figure 1, Item 21).
5. Remove four bolts (Figure 1, Item 3), six flat washers (Figure 1, Item 2), and four locknuts (Figure 1, Item 22) from two support brackets on filter/separator pipe (Figure 1, Item 21) and brackets (Figure 1, Items 1 and 23). Discard locknuts.

NOTE

The fittings need to be broken loose while meter is still mounted to assist in complete removal of fittings once meter is removed.

6. Loosen discharge fittings (Figure 1, Item 8) and filter/separator pipe and fittings (Figure 1, Item 21) from meter (Figure 1, Item 19).

CAUTION

Take care when removing meter. Meter cover is plastic and can be damaged if impacted. Failure to comply may result in damage to equipment.

NOTE

Bolt attaching meter to offset bracket (Figure 1, Item 7) is longer in length than the other three bolts.

7. Remove four bolts (Figure 1, Items 5 and 6), four flat washers (Figure 1, Item 4), and meter (Figure 1, Item 19) from bracket (Figure 1, Item 1) and offset bracket (Figure 1, Item 7).
8. Remove knob (Figure 1, Item 20) from meter (Figure 1, Item 19).
9. Remove discharge fittings (Figure 1, Item 8) and filter/separator pipe (Figure 1, Item 21) from meter (Figure 1, Item 19).

END OF TASK

Pipe Fittings

NOTE

Note alignment of fittings before disassembly to assist with position of fittings during installation to meter.

1. Remove two hose barbs (Figure 1, Item 9) from elbow (Figure 1, Item 16) and tee (Figure 1, Item 15).
2. Remove elbow (Figure 1, Item 16) from tee (Figure 1, Item 15).
3. Remove elbow (Figure 1, Item 12) and bushing (Figure 1, Item 13) together from nipple (Figure 1, Item 14).
4. Remove bushing (Figure 1, Item 13) from elbow (Figure 1, Item 12).
5. Remove nipple (Figure 1, Item 14) from tee (Figure 1, Item 15). Discard nipple.
6. Remove bushing (Figure 1, Item 17) from welded pipe (Figure 1, Item 18).

REMOVAL – CONTINUED

Pipe Fittings – Continued

7. Remove barb (Figure 1, Item 9) from welded pipe (Figure 1, Item 18).

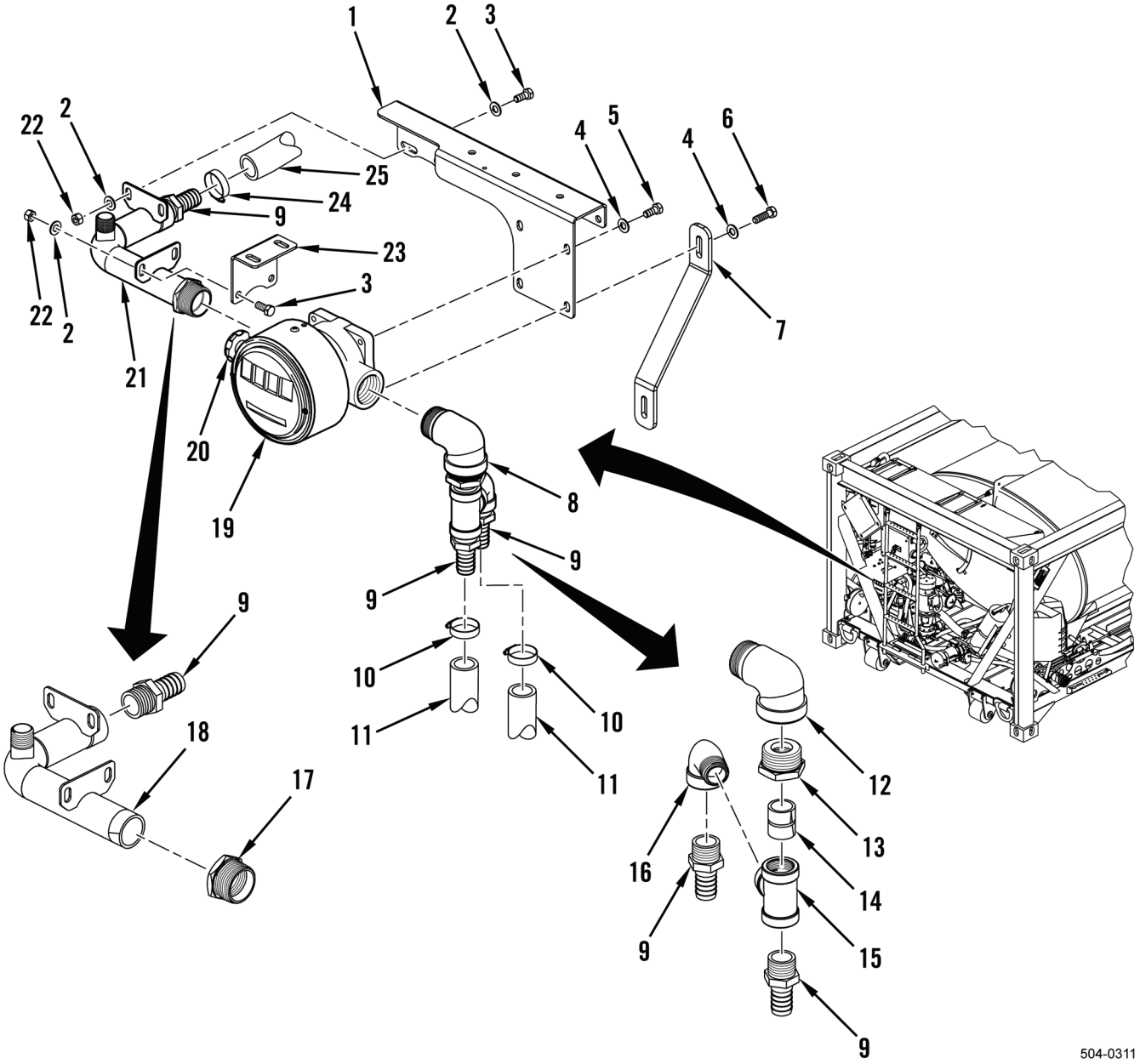


Figure 1. Flow Meter.

END OF TASK

INSTALLATION

Pipe Fittings

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).

NOTE

The pipe fittings will need to be assembled IAW orientation noted/marked prior to removal.

2. Install barb (Figure 2, Item 9) into welded pipe (Figure 2, Item 18).
3. Install bushing (Figure 2, Item 17) onto welded pipe (Figure 2, Item 18) loosely.
4. Install new nipple (Figure 2, Item 14) into tee (Figure 2, Item 15) loosely.
5. Install bushing (Figure 2, Item 13) into elbow (Figure 2, Item 12).
6. Install elbow (Figure 2, Item 12) and bushing (Figure 2, Item 13) onto nipple (Figure 2, Item 14).
7. Install elbow (Figure 2, Item 16) into tee (Figure 2, Item 15).
8. Install two hose barbs (Figure 2, Item 9) into elbow (Figure 2, Item 16) and tee (Figure 2, Item 15).

END OF TASK

Meter

NOTE

Wait until Follow-on Maintenance task in this WP to apply primer and sealer onto air eliminator and fitting for air eliminator on filter/separator pipe.

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).

CAUTION

- Meter housing is aluminum. Do not overtighten fittings when installing them to the meter.
- Do not loosen pipes to align, which can break the seal.
- Failure to comply may result in damage to equipment.

2. Install discharge fittings (Figure 2, Item 8) and filter/separator pipe (Figure 2, Item 21) into meter (Figure 2, Item 19).
3. Install knob (Figure 2, Item 20) onto meter (Figure 2, Item 19).
4. Loosen two bolts (Figure 2, Item 23) on top of bracket (Figure 2, Item 24) to assist in alignment of bracket.

NOTE

Bolt attaching meter to offset bracket (Figure 1, Item 7) is longer in length than the other three bolts.

5. Install meter (Figure 2, Item 19) onto bracket (Figure 2, Item 1) and offset bracket (Figure 1, Item 7) with four flat washers (Figure 2, Item 4) and four bolts (Figure 2, Items 5 and 6) hand tight.
6. Install four bolts (Figure 2, Item 3), six flat washers (Figure 2, Item 2), and four new locknuts (Figure 2, Item 22) onto brackets of filter/separator pipe (Figure 2, Item 21) and brackets (Figure 2, Items 1 and 24) hand tight.

NOTE

Bottom bolt on bracket can be loosened to align the meter hardware.

7. Align meter (Figure 2, Item 19), and tighten bolts (Figure 2, Items 3, 5, 6, and 23).

INSTALLATION – CONTINUED

Meter – Continued

8. Install hose (Figure 2, Item 26) onto barb fitting (Figure 2, Item 9) on filter/separator pipe (Figure 2, Item 21). Tighten hose clamp (Figure 2, Item 25).
9. Install two hoses (Figure 2, Item 11) onto two barb fittings (Figure 2, Item 9) on discharge pipes (Figure 2, Item 8) and tighten hose clamps (Figure 2, Item 10).

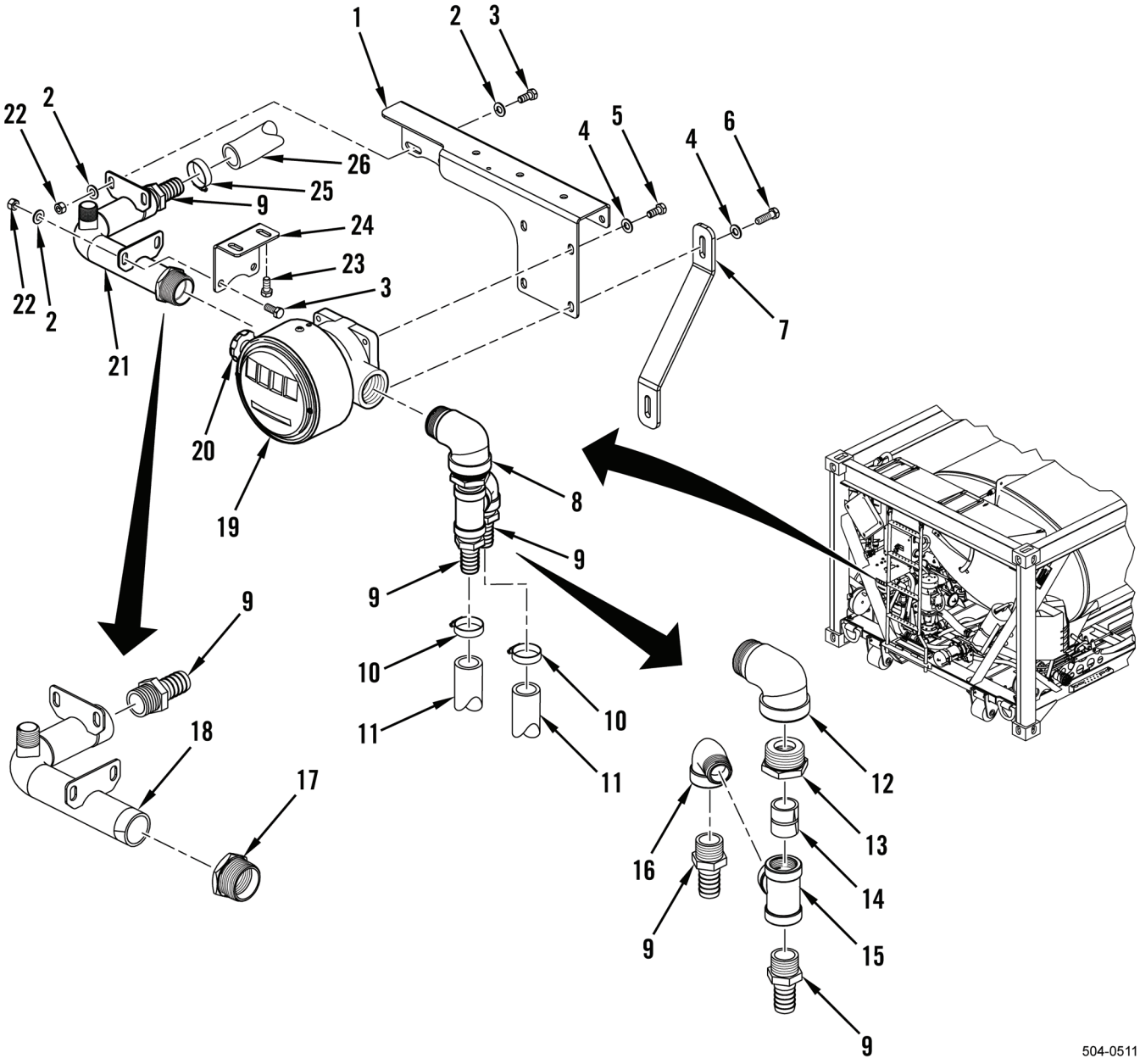


Figure 2. Flow Meter.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install air eliminator (WP 0063).
2. Install ISO rack ladder (WP 0120).
3. Remove suitable container and dispose of contents IAW local SOP.
4. Allow sealing compound to cure a minimum of 3 hours.
5. Wipe off excess sealing compound.
6. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FLOW METER REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

Equipment Condition

TRM shut down (TM 10-4930-370-10)

References

WP 0133

DISASSEMBLY

1. Remove two screws (Figure 1, Item 5), lens (Figure 1, Item 4), and seal (Figure 1, Item 3) from meter (Figure 1, Item 2).
2. Remove knob (Figure 1, Item 1) from meter (Figure 1, Item 2).

END OF TASK

ASSEMBLY

1. Install knob (Figure 1, Item 1) on meter (Figure 1, Item 2).
2. Install seal (Figure 1, Item 3) and lens (Figure 1, Item 4) on meter (Figure 1, Item 2) with two screws (Figure 1, Item 5).

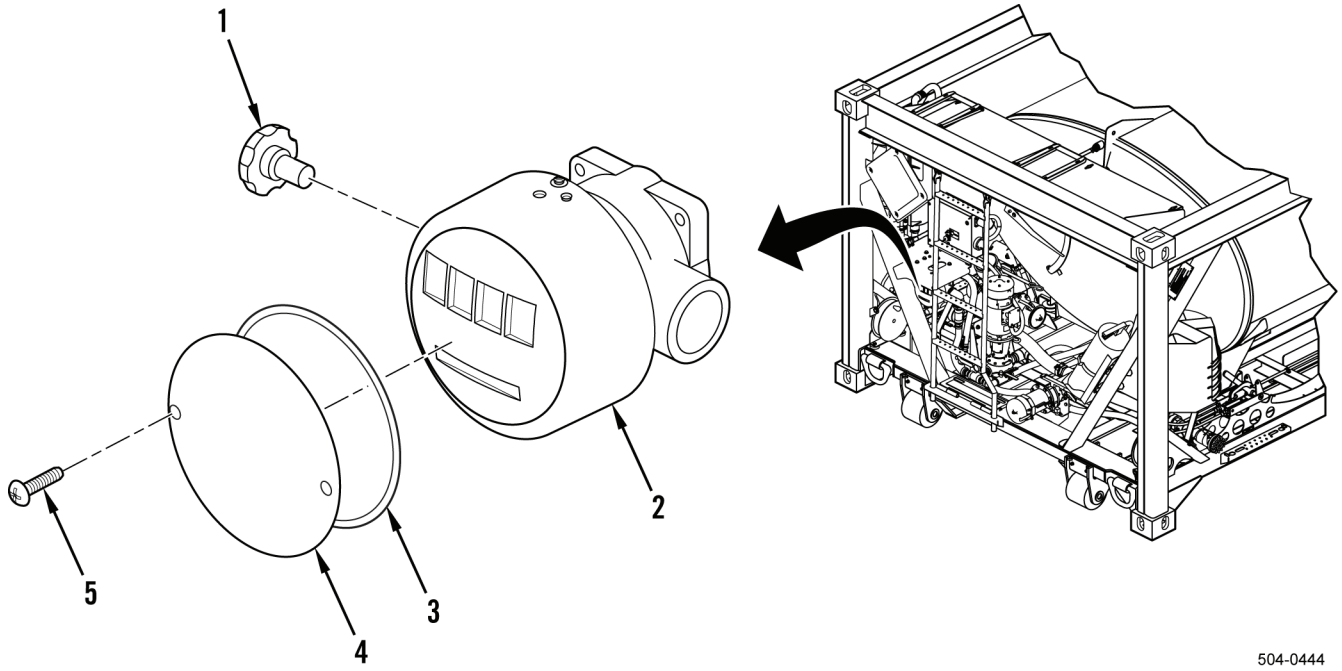


Figure 1. Lens and Knob.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

HOSES REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)

Materials/Parts

Nut, self-locking hexagon (WP 0133, Item 6) Qty: 7
Nut, self-locking, hexagon (WP 0135, Item 22) Qty: 2
Nut, self-locking, hexagon (WP 0134, Item 5)
Nut, self-locking, hexagon (WP 0134, Item 11)

Materials/Parts - Continued

Strap, tiedown (WP 0133, Item 17) Qty: 2

References

WP 0133
WP 0134
WP 0135

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

NOTE

See TM 10-4930-370-10 for location of valves associated with hoses.

REMOVAL

Evacuation Return Hose, 1 in. Dispense to V9 Valve Hose, and V1 Valve Supply to Pump Hose

NOTE

All three of the hoses are attached to hose barbs with two hose clamps. These hoses are not secured with any other hardware. The procedure below is for removing one hose. The steps are the same for all three hoses.

1. Position drip pan under hose (Figure 1, Item 2) ends.
2. Loosen two hose clamps (Figure 1, Item 6) and remove hose (Figure 1, Item 2) ends from barb fitting (Figure 1, Item 7).
3. Remove hose (Figure 1, Item 2) from TRM.

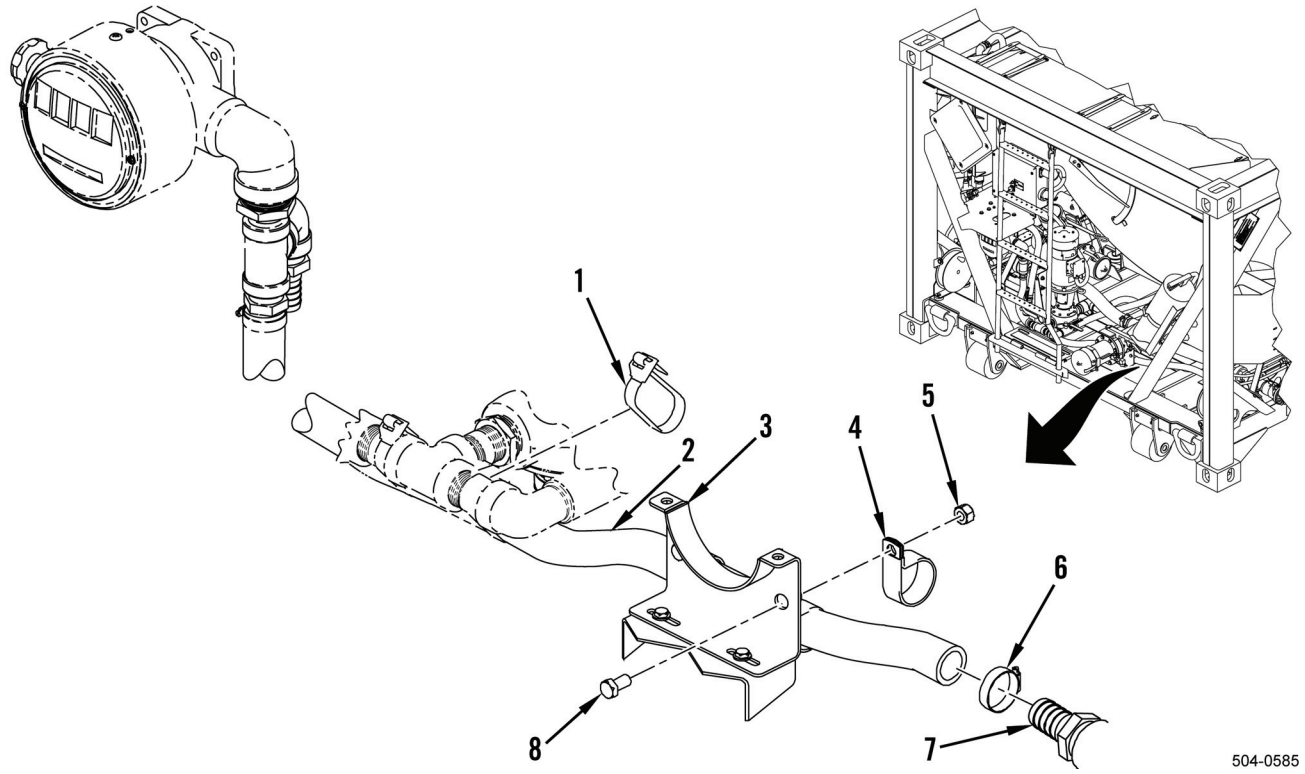


Figure 1. Hoses.

END OF TASK

1 in. Dispense to V8 Valve Hose, Filter/Separator to Meter Hose, and Fuel Pump to Filter/Separator Hose

NOTE

All three hoses are attached to hose barbs with two hose clamps and are secured with two P-clamps, locknuts, and bolts. The 1 in. dispense to V8 valve hose is secured to two pipe nipples with two plastic ties. The procedure below is for removing one hose at a time.

1. Position drip pan under hose ends.

REMOVAL – CONTINUED

1 in. Dispense to V8 Valve Hose, Filter/Separator to Meter Hose, and Fuel Pump to Filter/Separator Hose – Continued

2. Remove two plastic ties (Figure 1, Item 1) if removing 1 in. dispense to V8 valve hose. Discard plastic ties.
3. Remove two locknuts (Figure 1, Item 5), two bolts (Figure 1, Item 8), and two P-clamps (Figure 1, Item 4) from frame (Figure 1, Item 3). Discard locknuts.
4. Loosen two hose clamps (Figure 1, Item 6) and remove hose (Figure 1, Item 2) from barb fittings (Figure 1, Item 7).

END OF TASK

Filter/Separator Drain Hose

1. Position drip pan under hose ends.
2. Remove locknut (Figure 2, Item 5), flat washer (Figure 2, Item 7), bolt (Figure 2, Item 8), and two P-clamps (Figure 2, Items 4 and 6) from frame. Discard locknut.
3. Loosen hose clamp (Figure 2, Item 2) and remove hose (Figure 2, Item 3) from barb fitting (Figure 2, Item 1).
4. Remove cap (Figure 2, Item 9) from hose (Figure 2, Item 3).

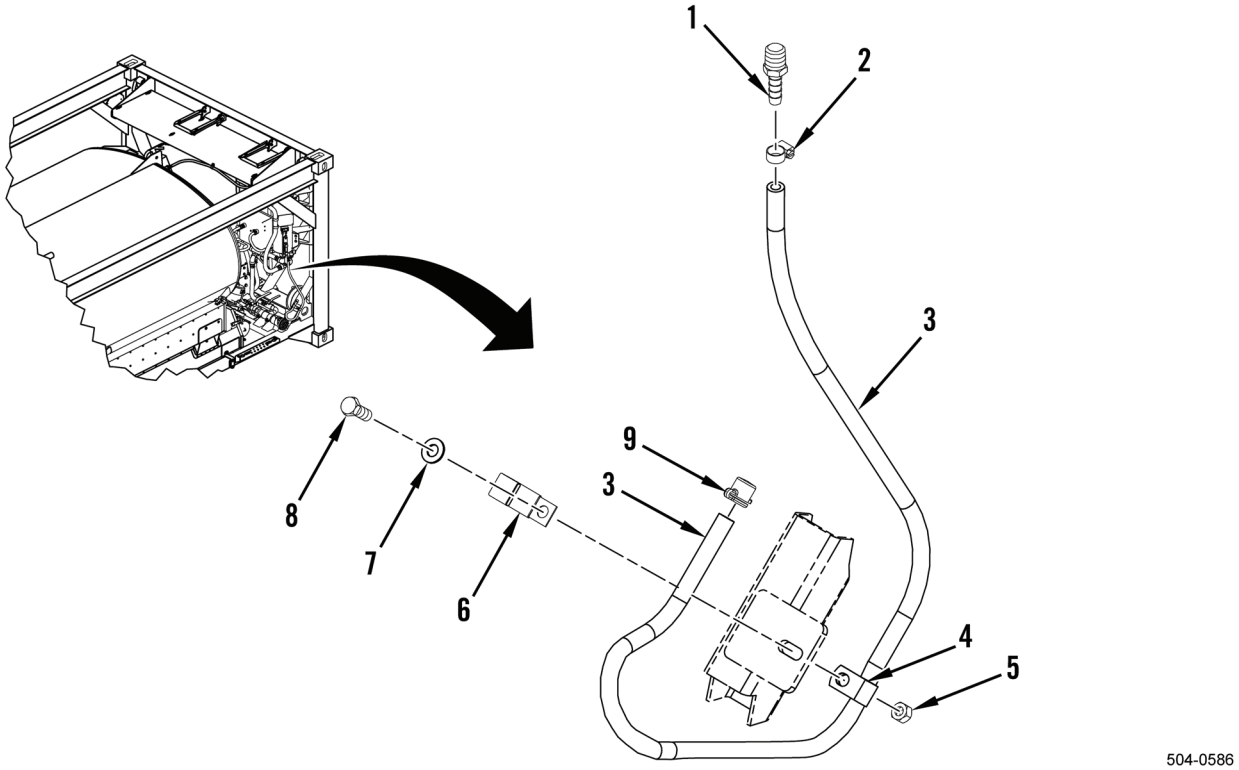


Figure 2. Filter/Separator Drain Hose.

END OF TASK

REMOVAL – CONTINUED

Air Eliminator Return Hose

1. Position drip pan under hose ends.
2. Remove locknut (Figure 3, Item 4), bolt (Figure 3, Item 5), and P-clamp (Figure 3, Item 3) from frame (Figure 3, Item 2). Discard locknut.

NOTE

The bolt does not need to be removed from the frame in order to remove the P-clamp.

3. Remove locknut (Figure 3, Item 10), P-clamp (Figure 3, Item 11), and flat washer (Figure 3, Item 12) from bolt (Figure 3, Item 13) and frame (Figure 3, Item 2). Discard locknut.
4. Remove two bolts (Figure 3, Item 5), two locknuts (Figure 3, Item 4), two P-clamps (Figure 3, Item 3), four flat washers (Figure 3, Item 8), and hose (Figure 3, Item 1) from bracket (Figure 3, Item 9). Discard two locknuts.
5. Loosen two hose clamps (Figure 3, Item 7) and remove hose (Figure 3, Item 1) from barb fittings (Figure 3, Item 6).

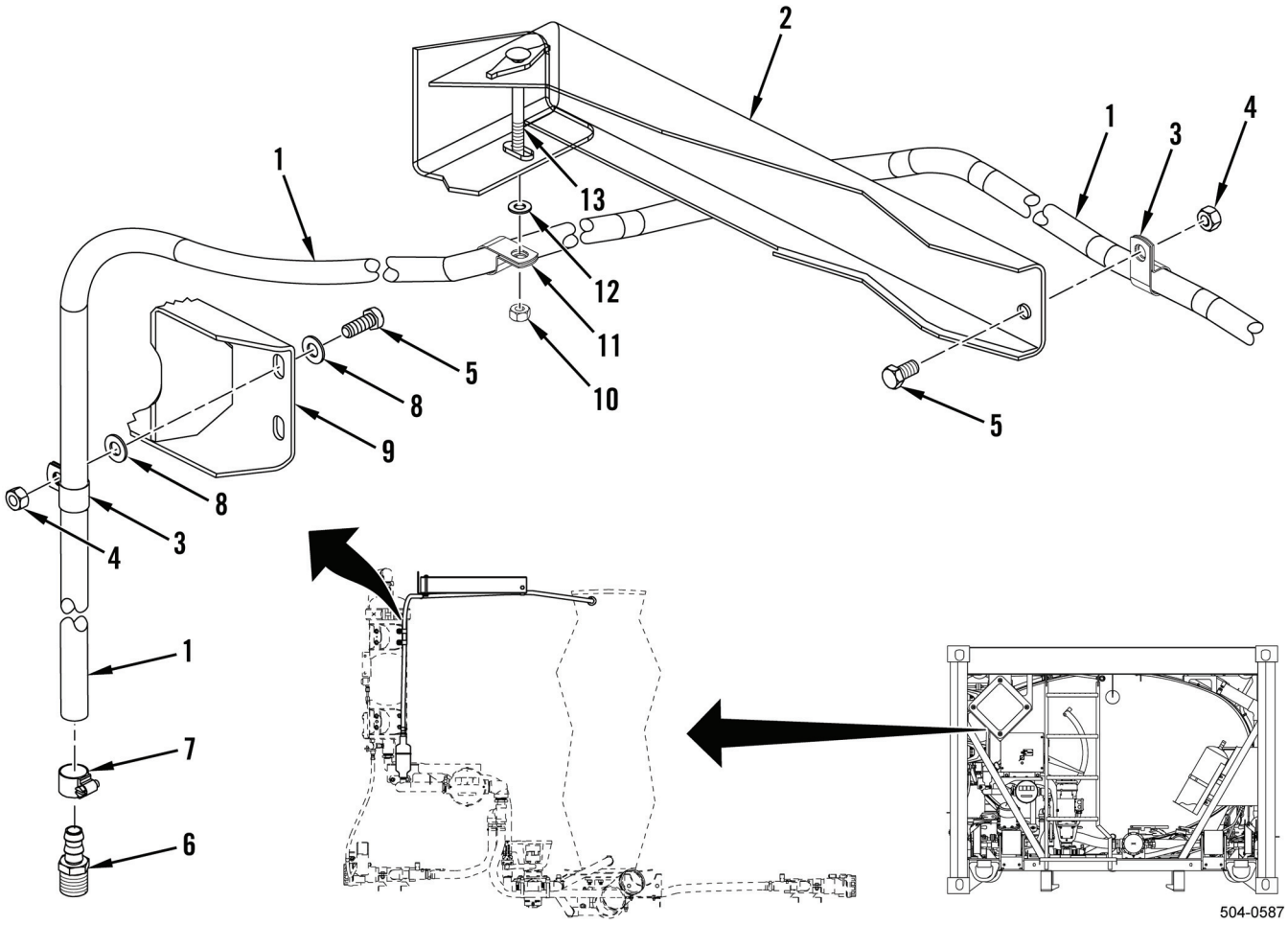


Figure 3. Air Eliminator Return Hose.

END OF TASK

INSTALLATION

Air Eliminator Return Hose

1. Position two hose clamps (Figure 3, Item 7) and install hose (Figure 3, Item 1) onto barb fittings (Figure 3, Item 6). Tighten hose clamps.
2. Install two bolts (Figure 3, Item 5), two new locknuts (Figure 3, Item 4), two P-clamps (Figure 3, Item 3), and four flat washers (Figure 3, Item 8) onto bracket (Figure 3, Item 9).
3. Install new locknut (Figure 3, Item 10), P-clamp (Figure 3, Item 11), and flat washer (Figure 3, Item 12) onto bolt (Figure 3, Item 13) and frame (Figure 3, Item 2).
4. Install new locknut (Figure 3, Item 4), bolt (Figure 3, Item 5), and P-clamp (Figure 3, Item 3) onto frame (Figure 3, Item 2).
5. Remove drip pan and dispose of contents IAW local SOP.

END OF TASK

Filter/Separator Drain Hose

1. Position hose clamp (Figure 4, Item 2) and cap (Figure 4, Item 9) and install hose (Figure 4, Item 3) onto barb fitting (Figure 4, Item 1). Tighten hose clamps.
2. Install bolt (Figure 4, Item 8), flat washer (Figure 4, Item 7), two P-clamps (Figure 4, Items 4 and 6), and new locknut (Figure 4, Item 5) onto frame.
3. Remove drip pan and dispose of contents IAW local SOP.

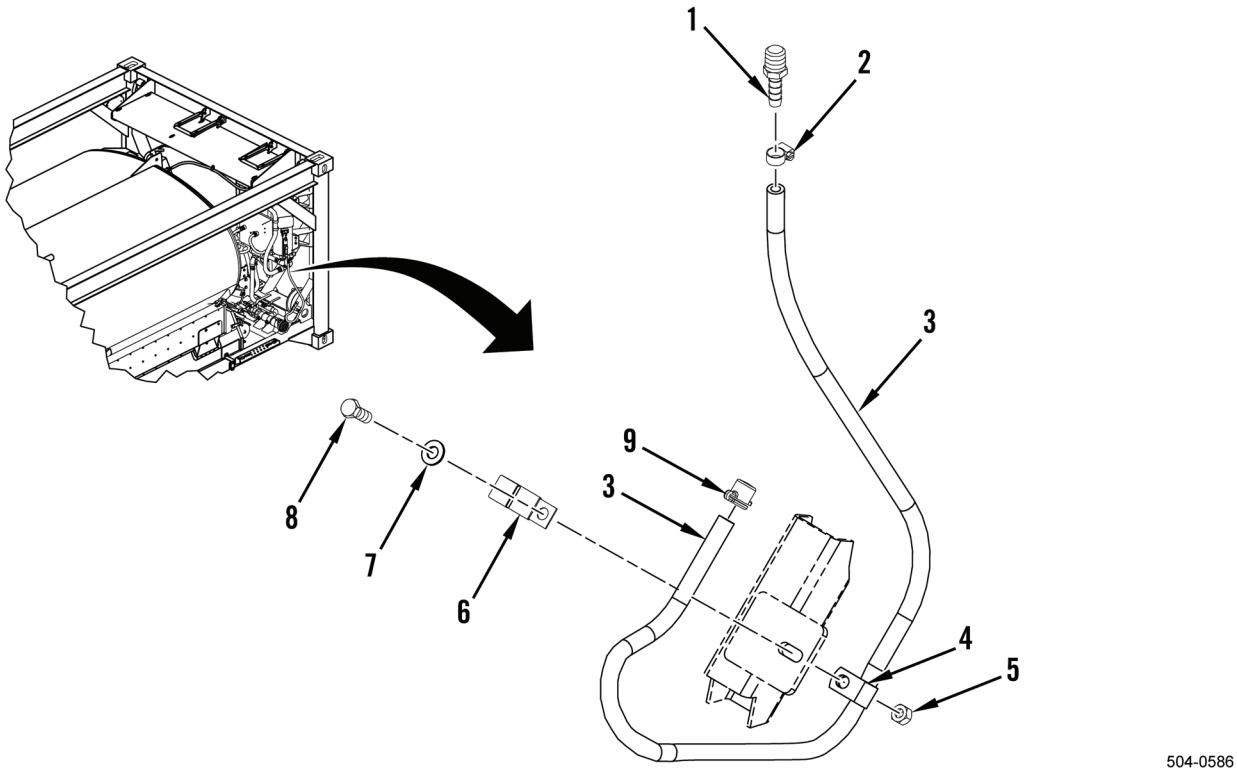


Figure 4. Filter/Separator Drain Hose.

END OF TASK

INSTALLATION – CONTINUED

1 in. Dispense to V8 Valve Hose, Filter/Separator to Meter Hose, and Fuel Pump to Filter/Separator Hose

1. Position two hose clamps (Figure 5, Item 6) and install hose (Figure 5, Item 2) onto barb fittings (Figure 5, Item 7). Tighten hose clamps.
2. Install two new locknuts (Figure 5, Item 5), two bolts (Figure 5, Item 8), and two P-clamps (Figure 5, Item 4) onto frame (Figure 5, Item 3).
3. Install two new plastic ties (Figure 5, Item 1) onto hose (Figure 5, Item 2) and pipe nipples if installing 1 in. dispense to V8 valve hose.
4. Remove drip pan and dispose of contents IAW local SOP.

END OF TASK

Evacuation Return Hose, 1 in. Dispense to V9 Valve Hose, and V1 Valve Supply to Pump Hose

1. Position hose (Figure 5, Item 2) onto TRM.
2. Position two hose clamps (Figure 5, Item 6) and install hose (Figure 5, Item 2) ends onto barb fitting (Figure 5, Item 7). Tighten hose clamps.
3. Remove drip pan and dispose of contents IAW local SOP.
4. Recirculate fuel to check for leaks (TM 10-4930-370-10).

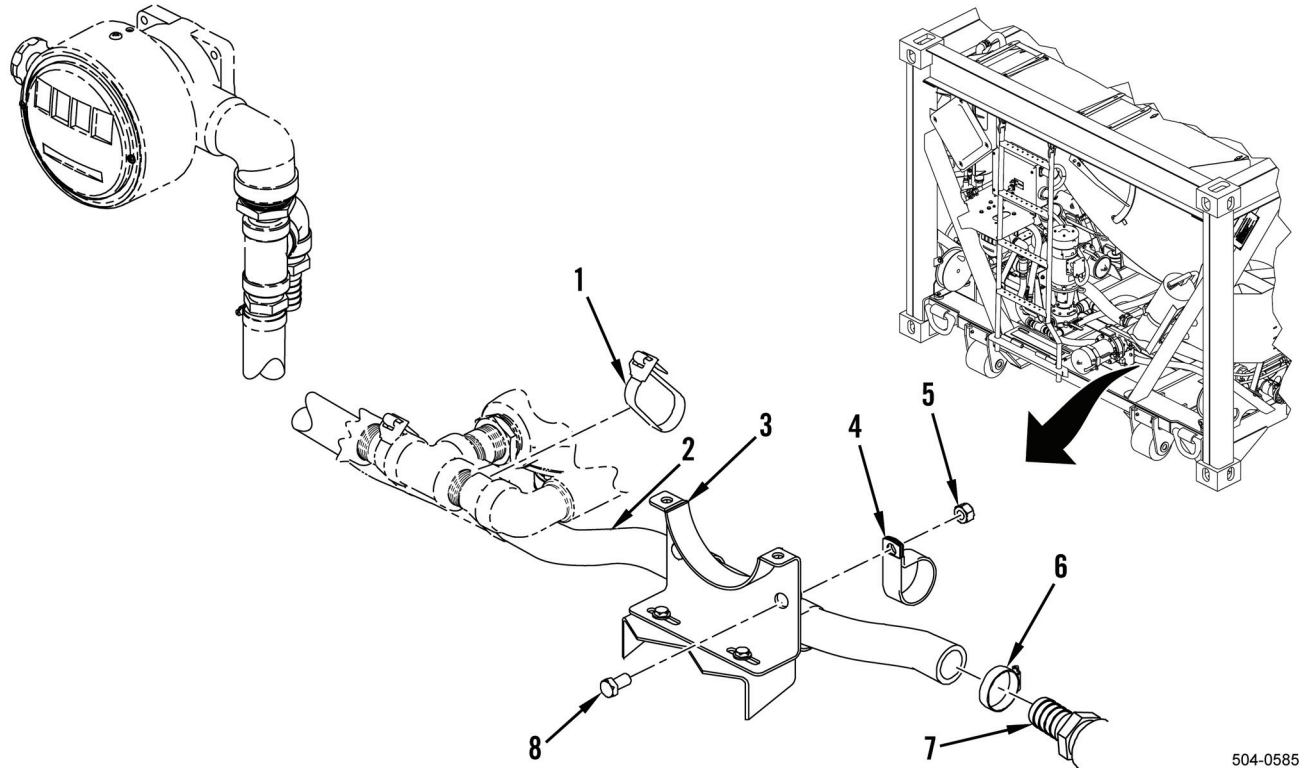


Figure 5. Hoses.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

AIR ELIMINATOR REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Wrench, pipe, 10 in. (WP 0182, Item 17)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)

References

WP 0122
WP 0134

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

1. Place drip pan under air eliminator (Figure 1, Item 1).
2. Loosen hose clamp (Figure 1, Item 3) and remove hose (Figure 1, Item 2) from barb fitting (Figure 1, Item 4) on air eliminator (Figure 1, Item 1).
3. Remove barb fitting (Figure 1, Item 4) from air eliminator (Figure 1, Item 1).

NOTE

Note orientation of air eliminator to assist during installation.

4. Remove air eliminator (Figure 1, Item 1) from pipe (Figure 1, Item 5).

END OF TASK

INSTALLATION

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).
2. Install air eliminator (Figure 1, Item 1) on pipe (Figure 1, Item 5) IAW orientation noted during removal.
3. Install barb fitting (Figure 1, Item 4) on air eliminator (Figure 1, Item 1).
4. Install hose (Figure 1, Item 2) on barb fitting (Figure 1, Item 4). Tighten hose clamp (Figure 1, Item 3).
5. Remove drip pan and dispose of contents IAW local SOP.
6. Allow sealing compound to cure a minimum of 3 hours.
7. Wipe off excess sealing compound.
8. Recirculate fuel to check for leaks (TM 10-4930-370-10).

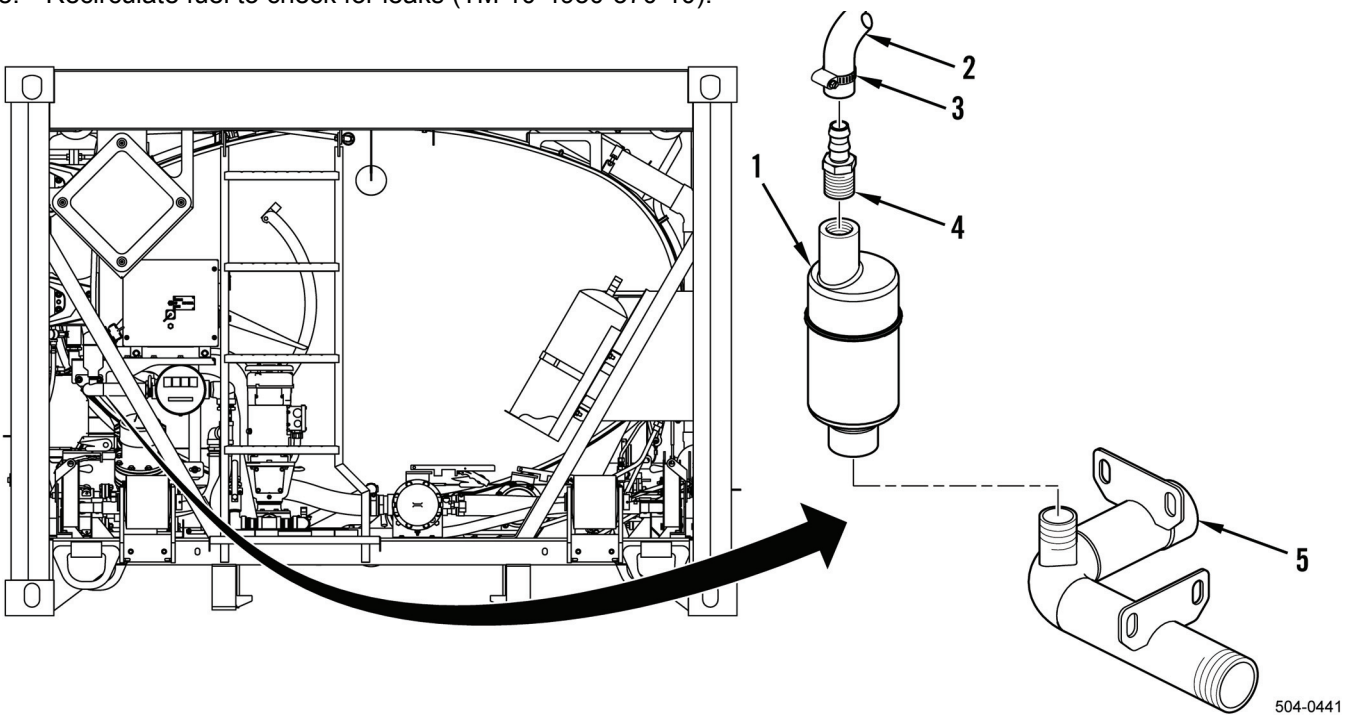


Figure 1. Air Eliminator.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FILTER/SEPARATOR ASSEMBLY REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Vise, machinist's, 4 in. (WP 0182, Item 13)
Wrench, pipe, 10 in. (WP 0182, Item 17)
Wrench, pipe, 18 in. (WP 0182, Item 18)

Materials/Parts

Nut, self-locking, hexagon (WP 0135, Item 22)
Qty: 11

Personnel Required

Two

References

WP 0122
WP 0135

Equipment Condition

TRM shut down (TM 10-4930-370-10)
Filter/separator drained of accumulated water and fuel (TM 10-4930-370-10)
V15 valve removed (WP 0065)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

Remove Pipe Fittings

1. Position drip pan under filter/separator assembly (Figure 1, Item 20).
2. Loosen hose clamp (Figure 1, Item 28) and remove hose (Figure 1, Item 27) from barb fitting (Figure 1, Item 1) on top of filter/separator assembly (Figure 1, Item 20).
3. Loosen hose clamp (Figure 1, Item 13) and remove hose (Figure 1, Item 14) from barb fitting (Figure 1, Item 16) on V15 (Figure 1, Item 15).
4. Remove bolt (Figure 1, Item 26), locknut (Figure 1, Item 25), and clamp (Figure 1, Item 24) from bracket to assist with removal of hose (Figure 1, Item 18). Discard locknut.
5. Loosen hose clamp (Figure 1, Item 17) and remove hose (Figure 1, Item 18) from barb fitting (Figure 1, Item 1) on bottom of filter/separator assembly (Figure 1, Item 20).
6. Remove two barb fittings (Figure 1, Item 1) from two elbow fittings (Figure 1, Item 2).
7. Remove hose barb (Figure 1, Item 16) from V15 valve (Figure 1, Item 15).
8. Remove breather (Figure 1, Item 5) and bushing (Figure 1, Item 4) from V16 valve (Figure 1, Item 3).

NOTE

Note alignment of fittings before disassembly to assist with position of fittings during installation to filter/separator.

9. Remove bushing (Figure 1, Item 19) and elbow fitting (Figure 1, Item 2) from filter/separator assembly (Figure 1, Item 20).
10. Remove elbow fitting (Figure 1, Item 2) from filter/separator assembly (Figure 1, Item 20).

END OF TASK

Remove Filter/Separator Assembly

1. Remove pipe fittings IAW task in this WP.
2. Remove two locknuts (Figure 1, Item 23), two bolts (Figure 1, Item 11), two P-clamps (Figure 1, Item 22), and hose (Figure 1, Item 27) from filter/separator assembly (Figure 1, Item 20). Discard locknuts.
3. Remove self-tapping screw (Figure 1, Item 12) from bracket (Figure 1, Item 10) and filter/separator assembly (Figure 1, Item 20).
4. Remove two locknuts (Figure 1, Item 7), two P-clamps (Figure 1, Item 8), four flat washers (Figure 1, Item 9), two bolts (Figure 1, Item 21), and hose (Figure 1, Item 6) from filter/separator assembly (Figure 1, Item 20) and bracket (Figure 1, Item 10). Discard locknuts.
5. Support filter/separator assembly (Figure 1, Item 20) with assistance.
6. Remove six locknuts (Figure 1, Item 7), twelve flat washers (Figure 1, Item 9), six bolts (Figure 1, Item 21), and filter/separator assembly (Figure 1, Item 20) from two brackets (Figure 1, Item 10). Discard locknuts.

END OF TASK

INSTALLATION

Install Filter/Separator Assembly

1. Use an assistant to position filter/separator assembly (Figure 1, Item 20) on two brackets (Figure 1, Item 10).
2. Install six bolts (Figure 1, Item 21), twelve flat washers (Figure 1, Item 9), six new locknuts (Figure 1, Item 7), and filter/separator assembly (Figure 1, Item 20) hand tight onto two brackets (Figure 1, Item 10).

INSTALLATION – CONTINUED

Install Filter/Separator Assembly – Continued

3. Install two bolts (Figure 1, Item 21), two P-clamps (Figure 1, Item 8), four flat washers (Figure 1, Item 9), two new locknuts (Figure 1, Item 7), and hose (Figure 1, Item 6) hand tight onto filter/separator assembly (Figure 1, Item 20).
4. Install self-tapping screw (Figure 1, Item 12) into bracket (Figure 1, Item 10) and filter/separator assembly (Figure 1, Item 20).
5. Tighten eight bolts (Figure 1, Item 21) and locknuts (Figure 1, Item 7).
6. Install two new locknuts (Figure 1, Item 23), two bolts (Figure 1, Item 11), two P-clamps (Figure 1, Item 22), and hose (Figure 1, Item 27) onto filter/separator assembly.
7. Install pipe fittings IAW task in this WP.

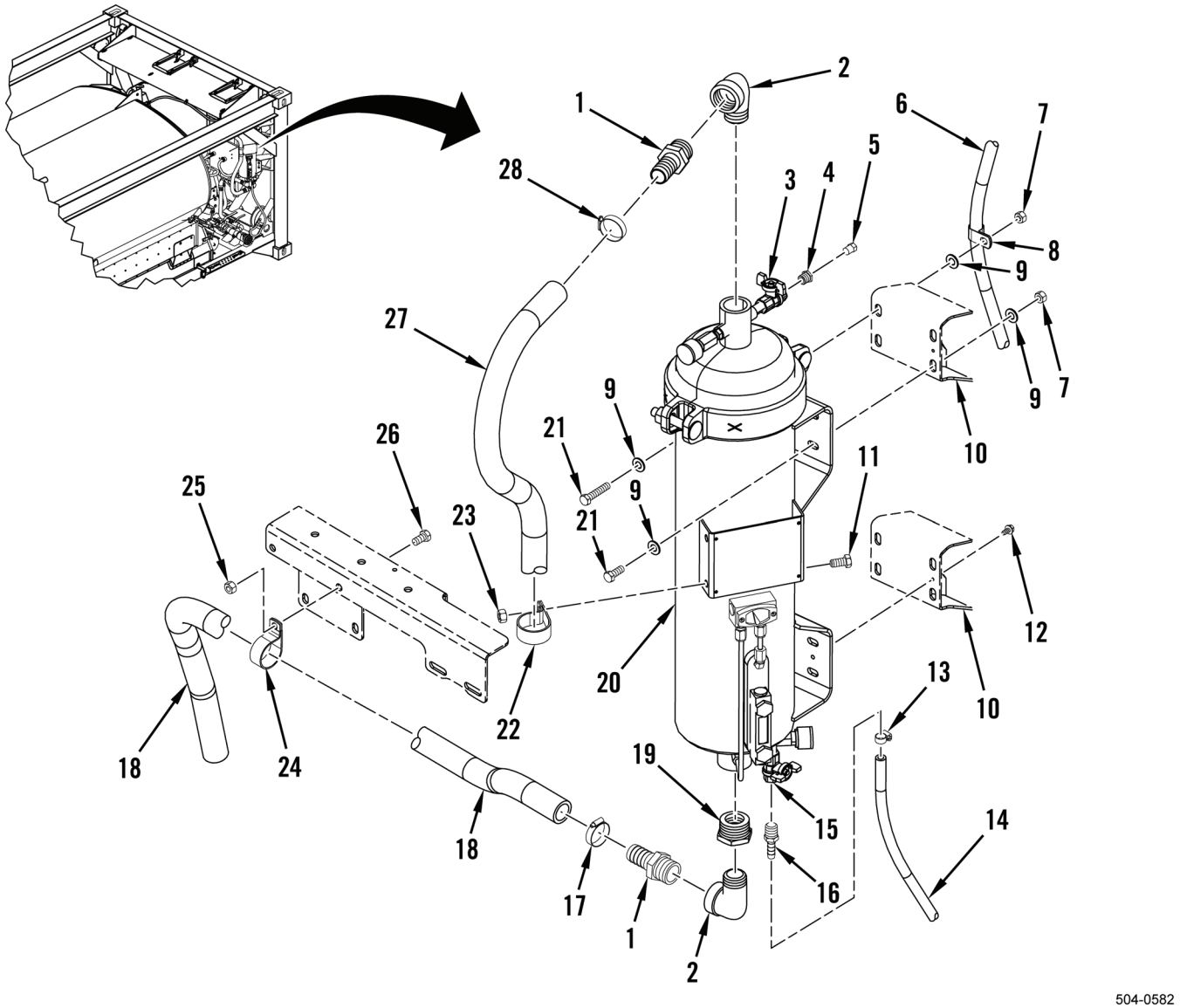


Figure 1. Filter/Separator Assembly.

END OF TASK

INSTALLATION – CONTINUED

Install Pipe Fittings

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).
2. Install bushing (Figure 2, Item 15) onto elbow fitting (Figure 2, Item 2).

CAUTION

Do not loosen pipes to align, which can break the seal. Failure to comply may result in damage to equipment.

NOTE

The pipe fittings will need to be assembled IAW orientation noted/marked prior to removal.

3. Install bushing (Figure 2, Item 15) and elbow fitting (Figure 2, Item 2) in filter/separator assembly (Figure 2, Item 16).
4. Install elbow fitting (Figure 2, Item 2) in filter/separator assembly (Figure 2, Item 16).
5. Install bushing (Figure 2, Item 4) into V16 valve (Figure 2, Item 5).
6. Install breather (Figure 2, Item 3) into bushing (Figure 2, Item 4).
7. Install V15 valve (WP 0065).
8. Install hose barb (Figure 2, Item 9) in V15 valve (Figure 2, Item 8).
9. Install two barb fittings (Figure 2, Item 1) in two elbow fittings (Figure 2, Item 2).
10. Position hose clamp (Figure 2, Item 10) and install hose (Figure 2, Item 11) onto barb fitting (Figure 2, Item 1) on bottom of filter/separator assembly (Figure 2, Item 16). Tighten hose clamp.
11. Install P-clamp (Figure 2, Item 12) to bracket with bolt (Figure 2, Item 14) and new locknut (Figure 2, Item 13).
12. Position hose clamp (Figure 2, Item 6) and install hose (Figure 2, Item 7) onto barb fitting (Figure 2, Item 9) on V15 valve (Figure 2, Item 8). Tighten hose clamp.
13. Position hose clamp (Figure 2, Item 18) and install hose (Figure 2, Item 17) onto barb fitting (Figure 2, Item 1) on top of filter/separator assembly (Figure 2, Item 16). Tighten hose clamp.
14. Remove drip pan and dispose of contents IAW local SOP.
15. Allow sealing compound to cure a minimum of 3 hours.
16. Wipe off excess sealing compound.

INSTALLATION – CONTINUED

Install Pipe Fittings – Continued

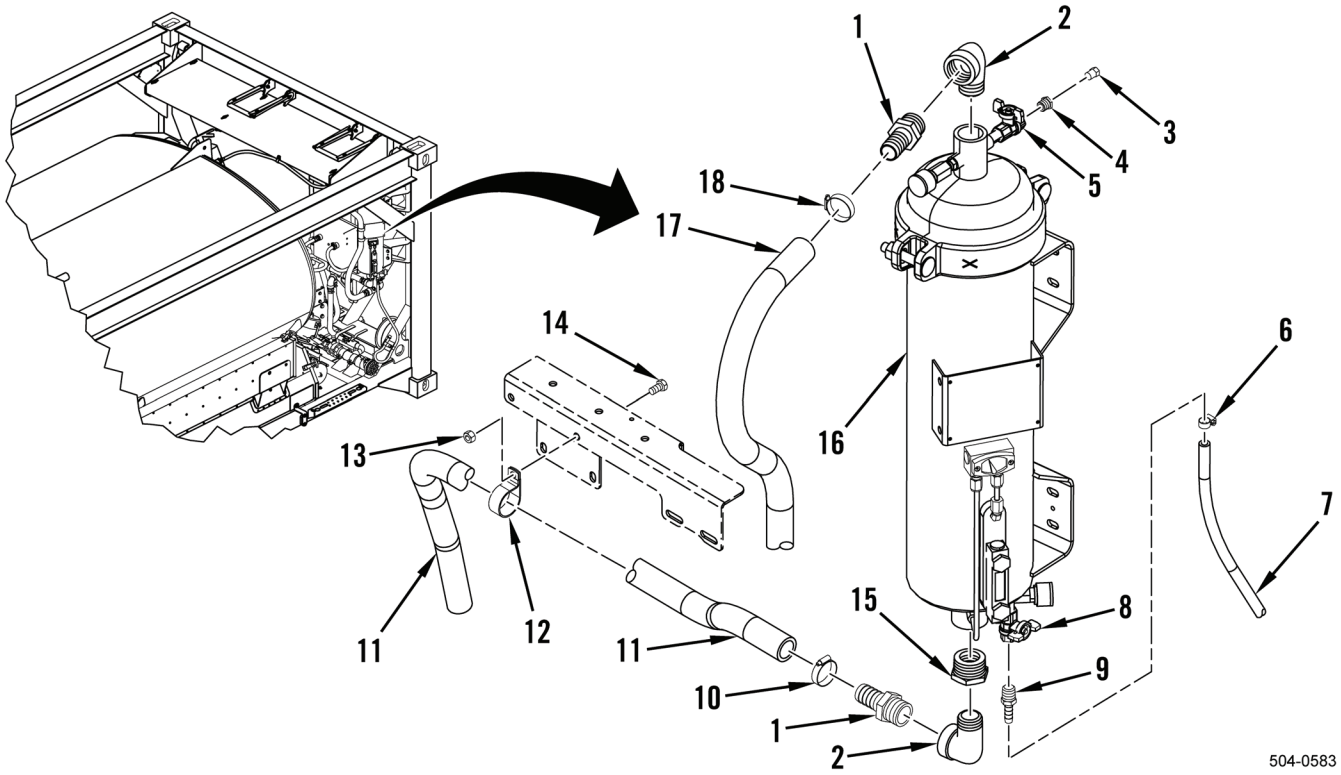


Figure 2. Filter/Separator Assembly.

END OF TASK

FOLLOW-ON MAINTENANCE

Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FILTER/SEPARATOR REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Vise, machinist's, 4 in. (WP 0182, Item 13)
Wrench, pipe, 10 in. (WP 0182, Item 17)
Wrench, torque, 250 lb-ft (WP 0182, Item 20)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Filter, element, fluid, canister (WP 0135, Item 15)
Filter, element, fluid, coalescer (WP 0135, Item 14)

Personnel Required

Two

References

WP 0122
WP 0135

Equipment Condition

TRM shut down (TM 10-4930-370-10)
Filter/separator drained of accumulated water and fuel (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

DISASSEMBLY

Filter/Separator Element Removal

1. Place drip pan under filter/separator (Figure 1, Item 6).
2. Loosen hose clamp (Figure 1, Item 2) and remove hose (Figure 1, Item 1) from barb fitting (Figure 1, Item 3).

CAUTION

To minimize contamination of filter/separator unit, do not touch inside surfaces. To avoid possible contamination of cover, do not place cover on the bare ground or in grass. Failure to comply may result in damage to equipment.

3. Remove two nuts (Figure 1, Item 9), two bolts (Figure 1, Item 7), two pieces of head clamp (Figure 1, Item 8), and head assembly (Figure 1, Item 11) from filter/separator (Figure 1, Item 6).
4. Remove seal (Figure 1, Item 10) from filter/separator (Figure 1, Item 6).
5. Inspect seal (Figure 1, Item 10) for damage, and replace seal if damaged.
6. Reach in filter/separator (Figure 1, Item 6) and turn canister (Figure 1, Item 4) CCW approximately 1/3 turn to disengage locking mechanism.

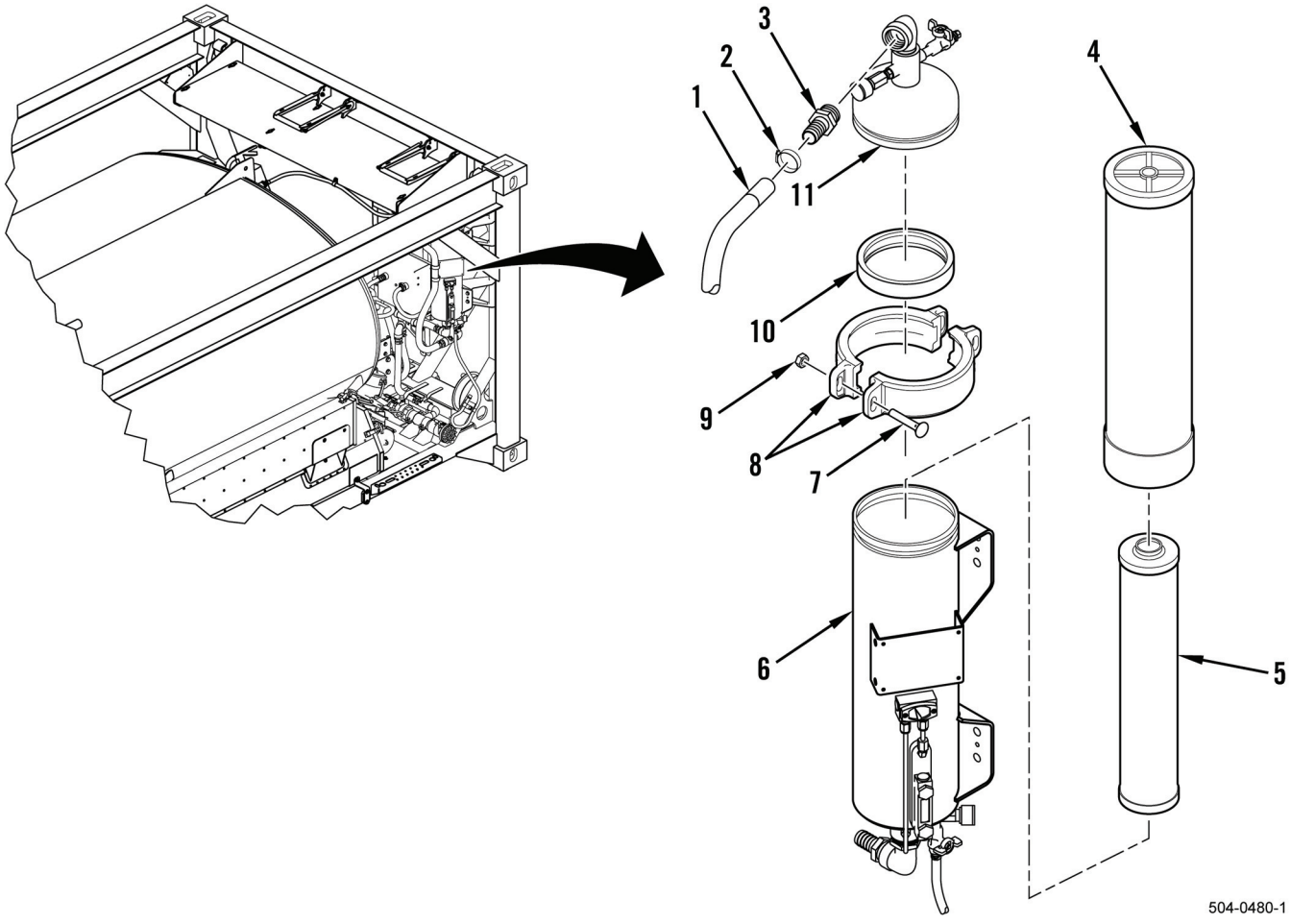


Figure 1. Filter/Separator Element.

DISASSEMBLY – CONTINUED

Filter/Separator Element Removal – Continued

NOTE

Coalescer may remain in filter/separator when canister is removed from filter/separator.

7. Remove canister (Figure 1, Item 4) and coalescer (Figure 1, Item 5) from filter/separator (Figure 1, Item 6). Discard canister and coalescer IAW local SOP.

END OF TASK

Sight Gauge Removal

1. Place drip pan under filter/separator.
2. Remove two bolts (Figure 2, Item 8), four O-rings (Figure 2, Item 9), and sight gauge (Figure 2, Item 7) from filter/separator ports (Figure 2, Item 10).

END OF TASK

Differential Pressure Gauge Removal

1. Unscrew two upper tube nuts (Figure 2, Item 5) from two upper adapters (Figure 2, Items 2 and 4).
2. Remove two upper adapters (Figure 2, Items 2 and 4) from differential pressure gauge (Figure 2, Item 3).
3. Unscrew two lower tube nuts (Figure 2, Item 11) from two lower adapters (Figure 2, Items 6 and 12).
4. Remove two lower adapters (Figure 2, Items 6 and 12) from filter/separator ports (Figure 2, Items 1 and 13).

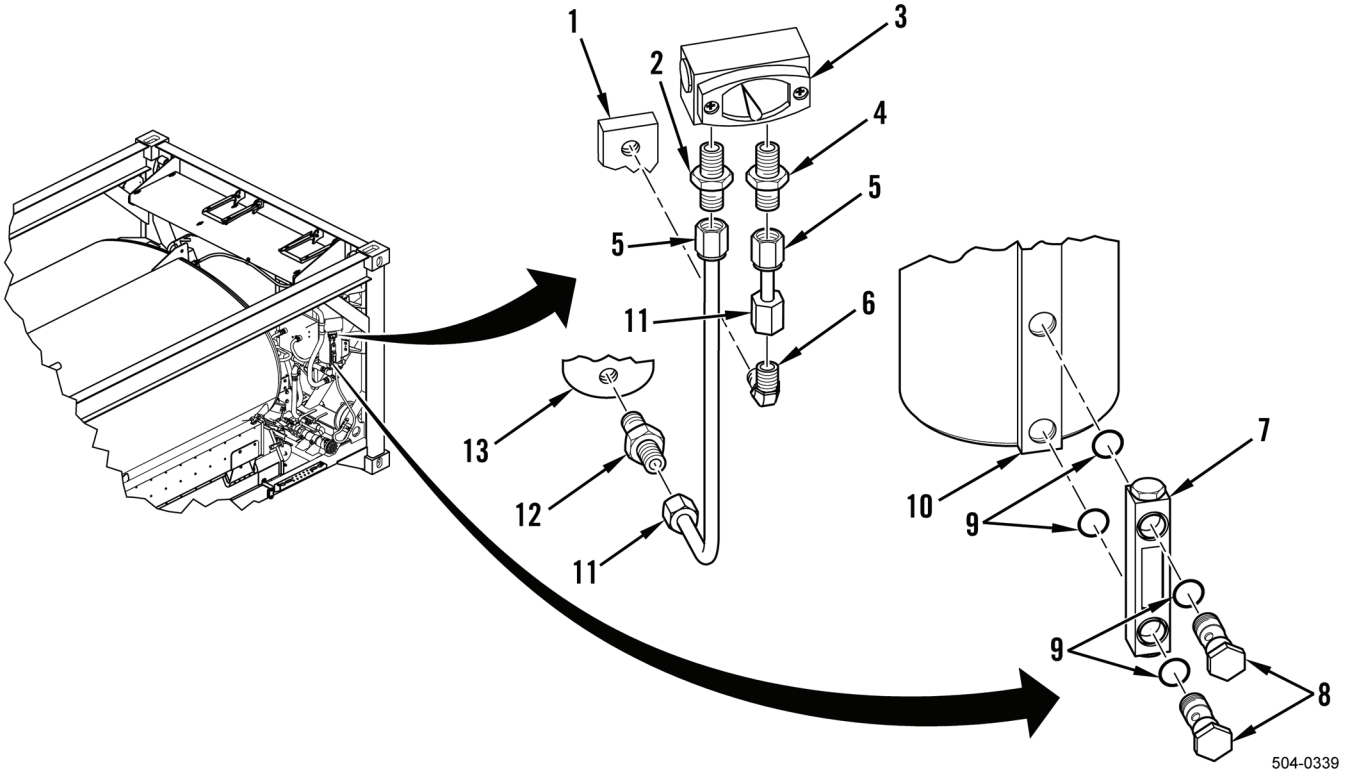


Figure 2. Sight Gauge and Differential Pressure Gauge.

END OF TASK

DISASSEMBLY – CONTINUED

V15 or V16 Valve Removal

NOTE

Steps 1 and 2 that follow apply to V15 valve only. Proceed to Step 3 to remove V16 valve.

1. Loosen hose clamp (Figure 3, Item 12) and remove hose (Figure 3, Item 11) from barb fitting (Figure 3, Item 10) on V15 valve (Figure 3, Item 7).
2. Remove barb fitting (Figure 3, Item 10) from V15 valve (Figure 3, Item 7).
3. Remove V15 or V16 valve (Figure 3, Item 7) from pipe nipple (Figure 3, Item 6) on filter/separator (Figure 3, Item 13) or cover (Figure 3, Item 17).

END OF TASK

Seal Removal

1. Loosen hose clamp (Figure 3, Item 2) and remove hose (Figure 3, Item 1) from barb fitting (Figure 3, Item 3).

CAUTION

To minimize contamination of filter/separator unit, do not touch inside surfaces. To avoid possible contamination of cover, do not place cover on the bare ground or in grass. Failure to comply may result in damage to equipment.

2. Remove two nuts (Figure 3, Item 15), two bolts (Figure 3, Item 8), two pieces of head clamp (Figure 3, Item 14), and cover (Figure 3, Item 17) from filter/separator (Figure 3, Item 13).
3. Remove seal (Figure 3, Item 16) from filter/separator (Figure 3, Item 13).
4. Inspect seal (Figure 3, Item 16) for damage, and replace seal if damaged.

END OF TASK

Fuel Sampling Valve Removal

NOTE

The fuel sampling valve will not be separated from the pipe nipple. The pipe nipple attaches the fuel sampling valve to the cover or filter/separator and will be removed with it.

Remove fuel sampling valve (Figure 3, Item 9) from cover (Figure 3, Item 17) or filter/separator (Figure 3, Item 13).

END OF TASK

DISASSEMBLY – CONTINUED

Filter/Separator Cover Removal

1. Remove seal (Remove Seal task in this WP).
2. Remove barb fitting (Figure 3, Item 3) and elbow fitting (Figure 3, Item 4) from cover port (Figure 3, Item 5).

NOTE

The fuel sampling valve will not be separated from the pipe nipple. The pipe nipple attaches the fuel sampling valve to the cover and will be removed with it.

3. Remove fuel sampling valve (Figure 3, Item 9) from cover (Figure 3, Item 17).

NOTE

Step 4 may be skipped if the V16 valve was removed in a previous step.

4. Remove V16 valve (Figure 3, Item 7) and pipe nipple (Figure 3, Item 6) from cover (Figure 3, Item 17).

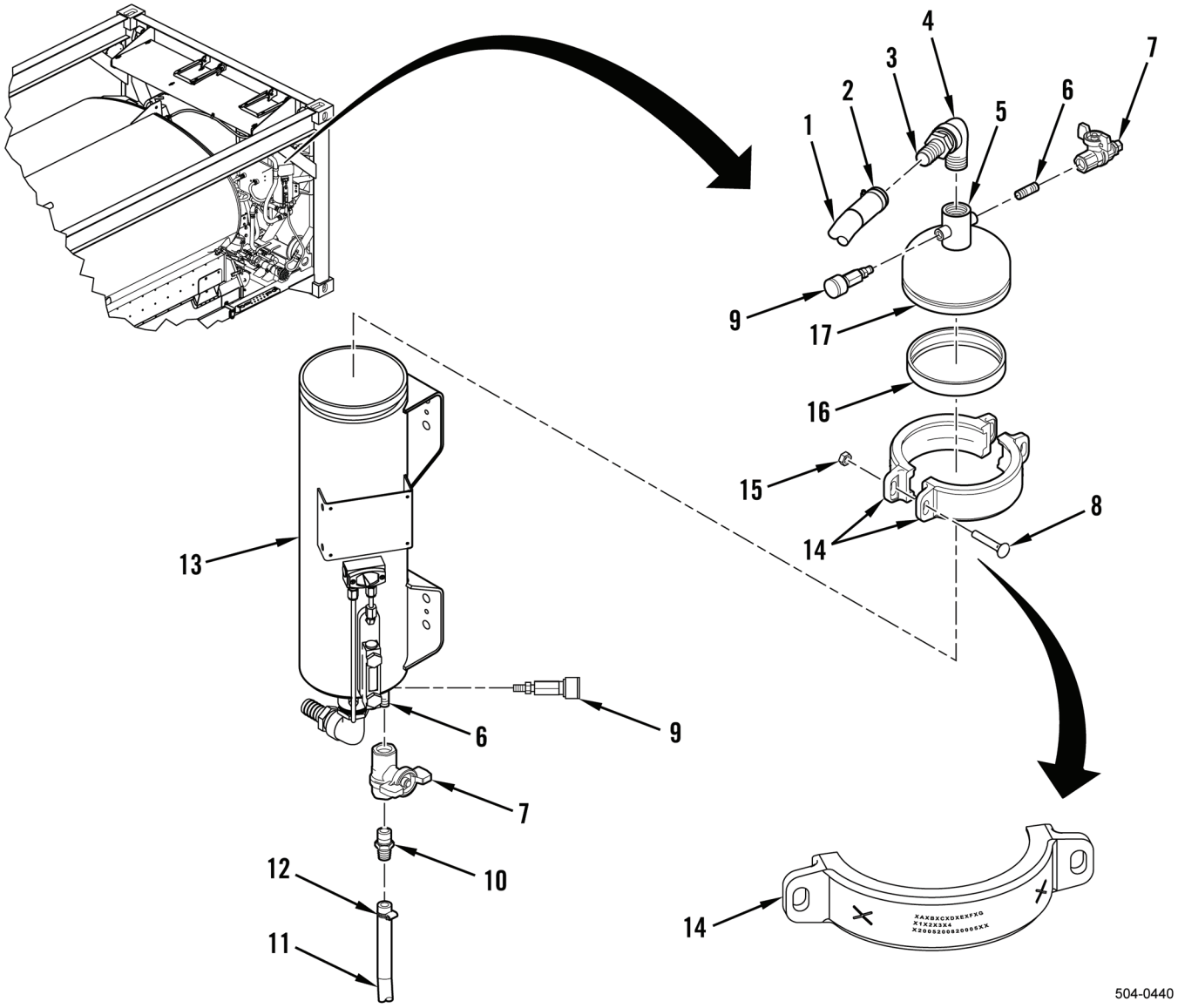


Figure 3. V15 Valve, V16 Valve, and Cover.

END OF TASK

ASSEMBLY

Fuel Sampling Valve Installation

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).
2. Install fuel sampling valve (Figure 4, Item 9) into cover (Figure 4, Item 17) or filter/separator (Figure 4, Item 13).
3. Allow sealing compound to cure a minimum of 3 hours.
4. Wipe off excess sealing compound.

END OF TASK

Filter/Separator Cover Installation

1. Install seal (Install Seal task in this WP).
2. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).
3. Install barb fitting (Figure 4, Item 3) and elbow fitting (Figure 4, Item 4) into cover port (Figure 4, Item 5).
4. Install pipe nipple (Figure 4, Item 6) into cover (Figure 4, Item 17).
5. Install V16 valve (Figure 4, Item 7) onto pipe nipple (Figure 4, Item 6).
6. Install fuel sampling valve (Figure 4, Item 9) into cover (Figure 4, Item 17).
7. Allow sealing compound to cure a minimum of 3 hours.
8. Wipe off excess sealing compound.

END OF TASK

Seal Installation

1. Lubricate seal (Figure 4, Item 16) with clean fuel and install on cover (Figure 4, Item 17).
2. Install cover (Figure 4, Item 17) on filter/separator (Figure 4, Item 13).
3. Push down on seal (Figure 4, Item 16) until top and bottom grooves are visible.
4. Secure head assembly with head clamp (Figure 4, Item 14), and make sure text stamped on both clamp halves is facing up.

WARNING

Make sure head clamp sides are properly engaged with seal and head assembly before tightening nuts to avoid fuel leaks. Failure to comply may result in injury or death to personnel.

5. Make sure head clamp (Figure 4, Item 14) sides are properly engaged.
6. Install two nuts (Figure 4, Item 15) and two bolts (Figure 4, Item 8) on head clamp (Figure 4, Item 14). Torque nuts to 80-100 lb-ft (108-136 Nm).
7. Install hose (Figure 4, Item 1) onto barb fitting (Figure 4, Item 3) and tighten hose clamp (Figure 4, Item 2).

END OF TASK

ASSEMBLY – CONTINUED

V15 or V16 Valve Installation

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).
2. Install V15 or V16 valve (Figure 4, Item 7) onto pipe nipple (Figure 4, Item 6) on filter/separator (Figure 4, Item 13) or cover (Figure 4, Item 17).

NOTE

Steps 3 and 4 apply to V15 valve only.

3. Install barb fitting (Figure 4, Item 10) onto V15 valve (Figure 4, Item 7).
4. Install hose (Figure 4, Item 11) onto barb fitting (Figure 4, Item 10) and tighten hose clamp (Figure 4, Item 12).
5. Allow sealing compound to cure a minimum of 3 hours.
6. Wipe off excess sealing compound.

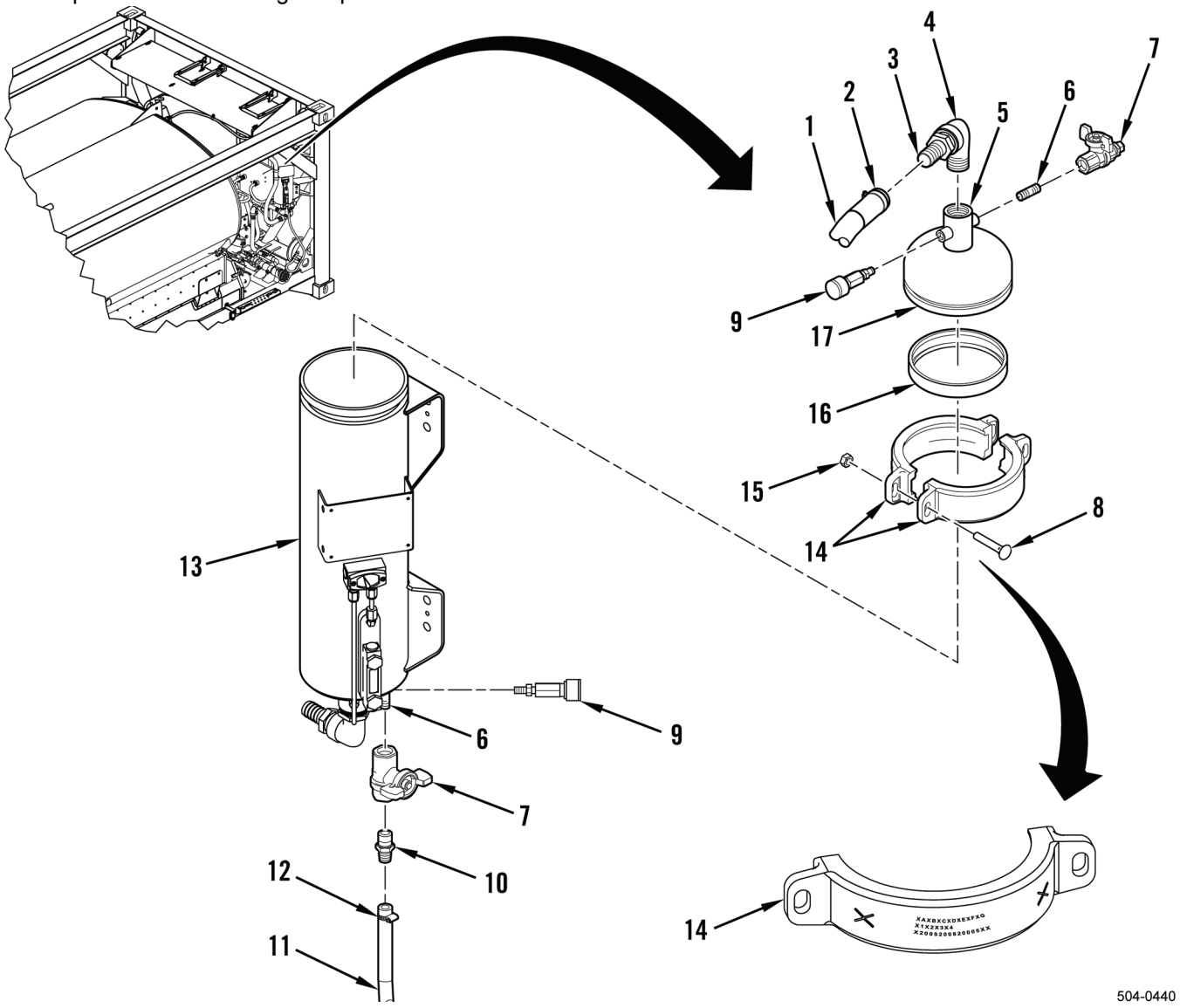


Figure 4. V15 Valve, V16 Valve, and Cover.

END OF TASK

ASSEMBLY – CONTINUED

Differential Pressure Gauge Installation

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).
2. Install two lower adapters (Figure 5, Items 6 and 12) into filter/separator ports (Figure 5, Items 1 and 13).
3. Connect two lower tube nuts (Figure 5, Item 11) on two lower adapters (Figure 5, Items 6 and 12).
4. Install two upper adapters (Figure 5, Items 2 and 4) into differential pressure gauge (Figure 5, Item 3).
5. Connect two upper tube nuts (Figure 5, Item 5) onto adapters (Figure 5, Items 2 and 4).
6. Allow sealing compound to cure a minimum of 3 hours.
7. Wipe off excess sealing compound.

END OF TASK

Sight Gauge Installation

NOTE

Make sure high mark is at top of sight gauge.

1. Install sight gauge (Figure 5, Item 7) onto filter/separator ports (Figure 5, Item 10) hand tight with two bolts (Figure 5, Item 8) and four O-rings (Figure 5, Item 9).
2. Tighten top and bottom bolts (Figure 5, Item 8) alternately.
3. Remove drip pan and dispose of contents IAW local SOP.

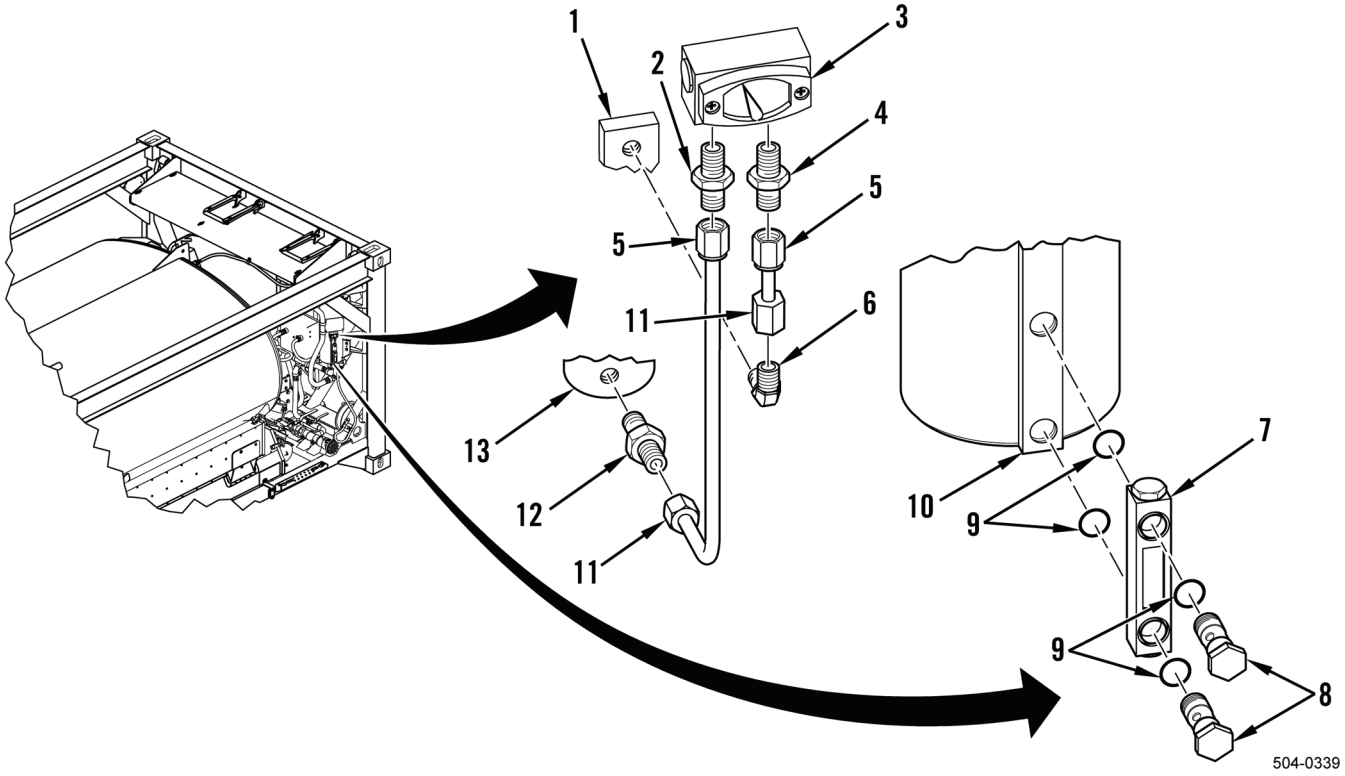


Figure 5. Sight Gauge and Differential Pressure Gauge.

END OF TASK

ASSEMBLY – CONTINUED

Filter/Separator Element Installation

CAUTION

Handling canisters and coalescers with bare hands can damage or contaminate the unit and shorten service life. Canisters and coalescers should only be handled with gloves. Failure to comply may result in damage to equipment.

1. Inspect O-rings inside top (Figure 6, Item 2) and bottom (Figure 6, Item 4) of new coalescer (Figure 6, Item 3) for signs of damage. Replace coalescer if damaged.
2. Lubricate O-rings inside top (Figure 6, Item 2) and bottom (Figure 6, Item 4) of new coalescer (Figure 6, Item 3) with clean fuel and install in canister (Figure 6, Item 1).
3. Install new canister (Figure 6, Item 1) and coalescer (Figure 6, Item 3) in filter/separator (Figure 6, Item 5) and secure in place by pressing straight down and turning 1/3 turn CW.
4. Lubricate seal (Figure 6, Item 7) with clean fuel and install on head assembly (Figure 6, Item 8).
5. Install head assembly (Figure 6, Item 8) on filter/separator (Figure 6, Item 5).
6. Push down on seal (Figure 6, Item 7) until top and bottom grooves are visible.
7. Secure head assembly with head clamp (Figure 6, Item 6), and make sure text stamped on both clamp halves is facing up.

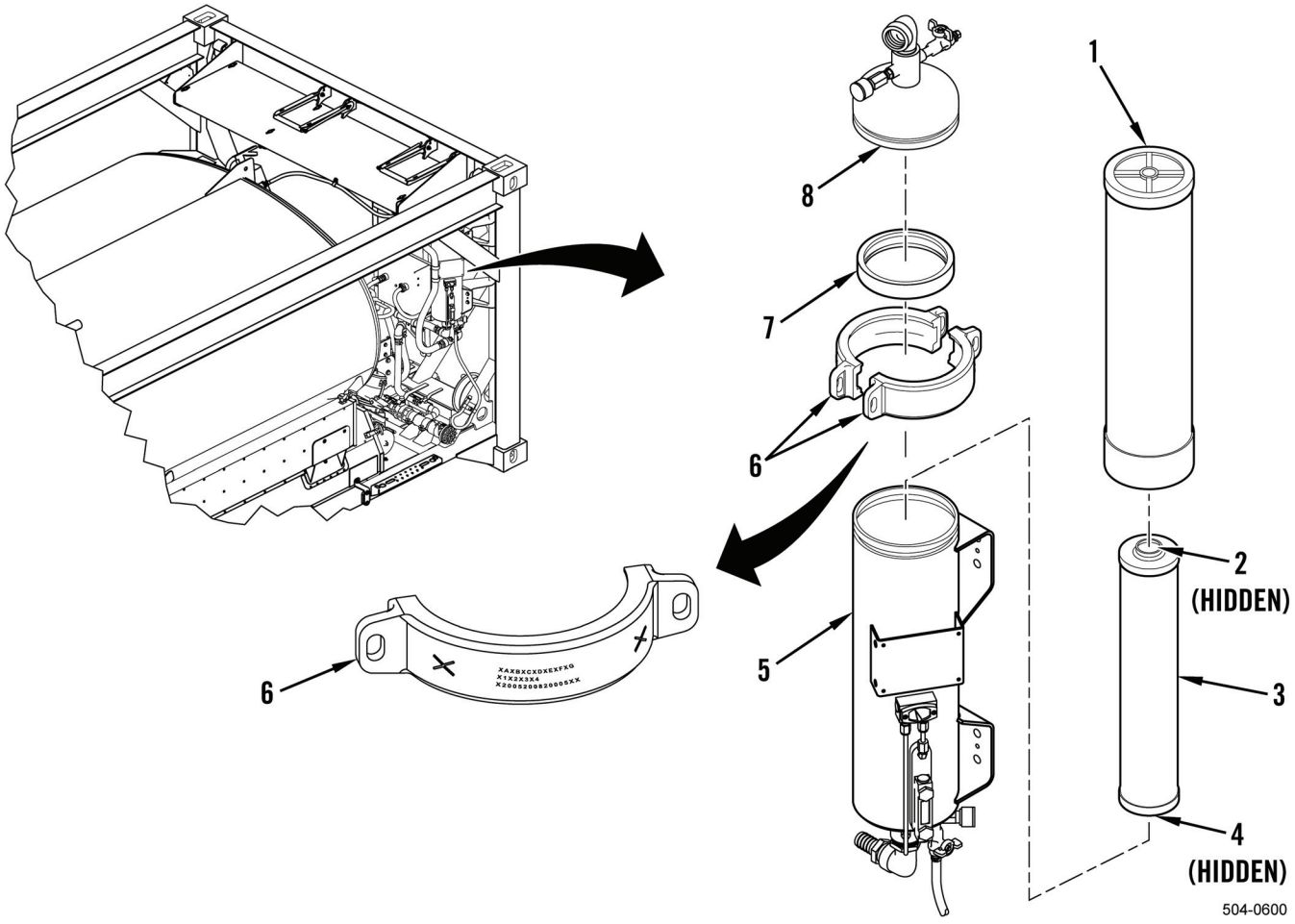


Figure 6. Filter/Separator Element.

ASSEMBLY – CONTINUED

Filter/Separator Element Installation – Continued

WARNING

Make sure head clamp sides are properly engaged with seal and head assembly before tightening nuts to avoid fuel leaks. Failure to comply may result in injury or death to personnel.

8. Make sure head clamp (Figure 7, Item 5) sides are properly engaged.
9. Install two nuts (Figure 7, Item 6) and two bolts (Figure 7, Item 4) on head clamp (Figure 7, Item 5). Torque nuts to 80-100 lb-ft (108-136 Nm).
10. Install hose (Figure 7, Item 1) onto barb fitting (Figure 7, Item 3) and tighten hose clamp (Figure 7, Item 2).

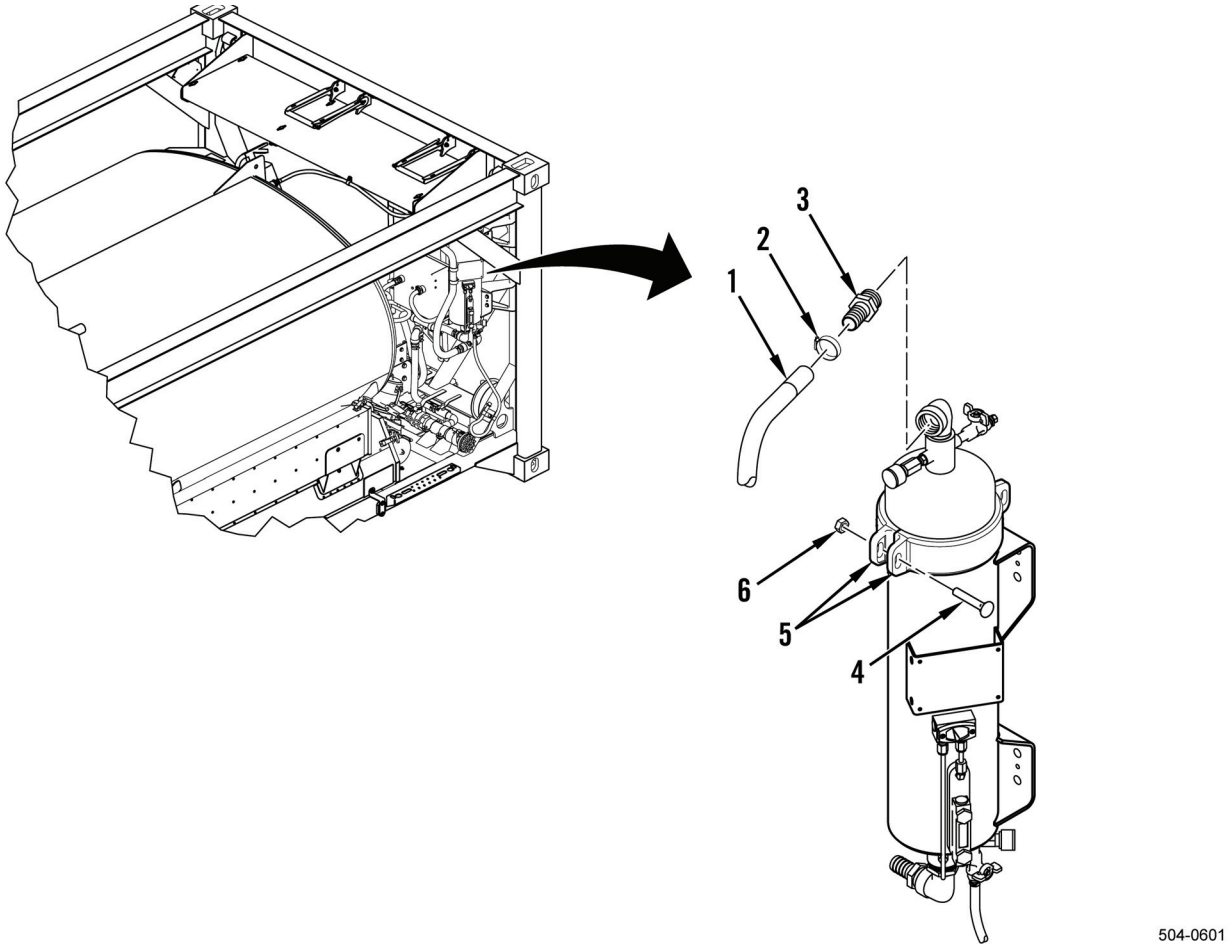


Figure 7. Filter/Separator Clamp and Hose.

END OF TASK

FOLLOW-ON MAINTENANCE

Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

EMI CONTROL BOX REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Drill, battery, rechargable (WP 0182, Item 6)
Drill set, twist (WP 0182, Item 7)

Materials/Parts

Corrosion preventive compound (WP 0181, Item 5)
Grease, electrically conductive (WP 0181, Item 9)
Sealing compound (WP 0181, Item 21)
Wire marker books (WP 0181, Item 23)
Nut, self-locking, hexagon (WP 0136, Item 72) Qty: 4
Nut, self-locking, hexagon (WP 0136, Item 69) Qty: 2

Materials/Parts – Continued

Nut, self-locking, hexagon (WP 0136, Item 70) Qty: 5
Tie, cable (WP 0136, Item 65) Qty: 2
Washer, lock (WP 0136, Item 66) Qty: 4

References

WP 0059
WP 0132
WP 0136

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Ensure all sources of power are disconnected from the TRM before proceeding with maintenance.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

CAUTION

Cut sealing compound on conduit box cover before cover removal. Failure to comply may result in damage to equipment.

1. Cut sealing compound on cover (Figure 1, Item 7) and conduit box (Figure 1, Item 2).
2. Remove two screws (Figure 1, Item 6) and cover (Figure 1, Item 7) from conduit box (Figure 1, Item 2) on motor (Figure 1, Item 1).
3. Inspect cover gaskets on cover (Figure 1, Item 7) for damage. Replace cover gaskets if damaged (WP 0059).
4. Pull bundle of wires gently from conduit box (Figure 1, Item 2).
5. Remove two cable ties (Figure 1, Item 10) from four wire boots (Figure 1, Items 11 and 16), and slide four wire boots back on wires (Figure 1, Items 12 and 17). Discard cable ties.

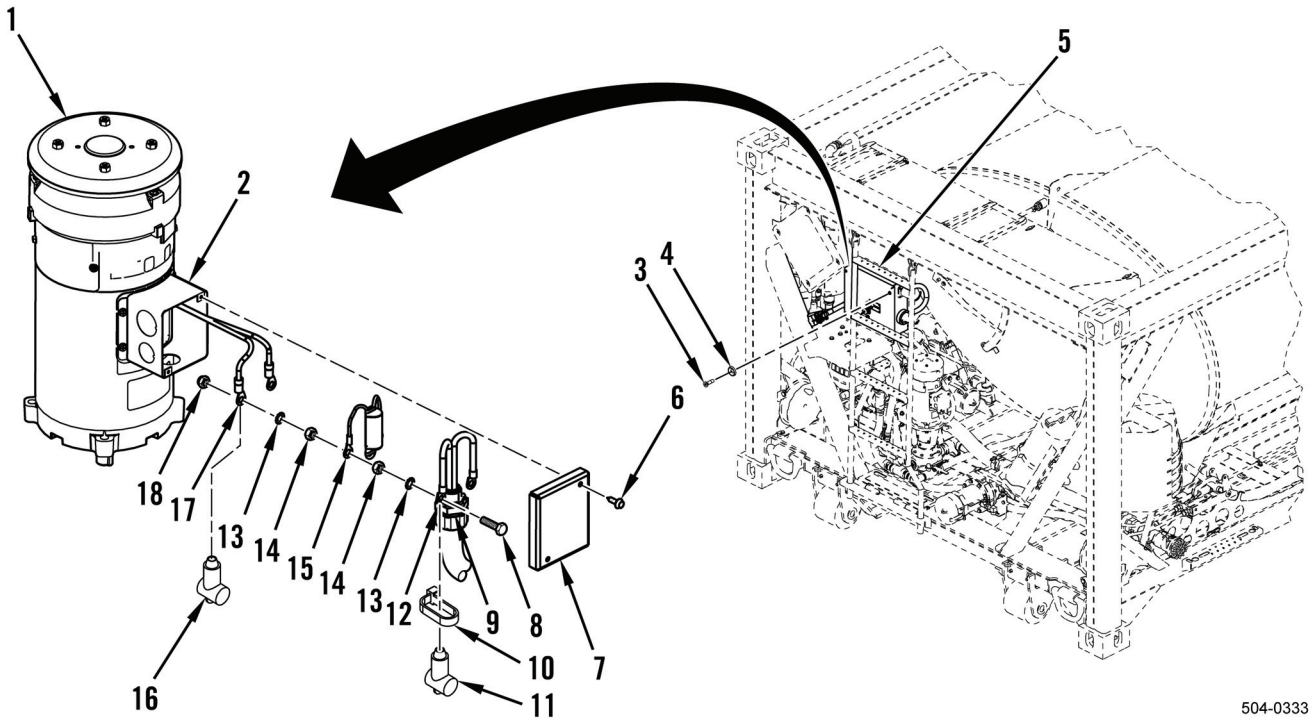


Figure 1. Wiring.

6. Inspect four wire boots (Figure 1, Items 11 and 16) for damage. Remove and replace wire boots if damaged (WP 0059).

NOTE

Tag wires prior to removal to aid in installation.

7. Remove two bolts (Figure 1, Item 8), four nuts (Figure 1, Item 14), two locknuts (Figure 1, Item 18), and four lockwashers (Figure 1, Item 13) from conduit wires (Figure 1, Item 12), capacitor (Figure 1, Item 15), and motor wires (Figure 1, Item 17). Discard locknuts and lockwashers.
8. Remove inner conduit nut (Figure 1, Item 9) from conduit box (Figure 1, Item 2). Feed conduit wires (Figure 1, Item 12) through opening in conduit box (Figure 1, Item 2) and conduit nut (Figure 1, Item 9).

REMOVAL – CONTINUED

9. Remove four screws (Figure 1, Item 3) and washers (Figure 1, Item 4) from EMI control box cover (Figure 1, Item 5). Open EMI control box cover.

NOTE

P-clamp will remain on electrical cable.

10. Remove bolt (Figure 2, Item 2), locknut (Figure 2, Item 1), and P-clamp (Figure 2, Item 3) securing 28 VDC power input connector (Figure 2, Item 4) to frame. Discard locknut.

NOTE

The two bolts on 28 VDC power input connector do not need to be removed.

11. Remove four locknuts (Figure 2, Item 6) and two spacers (Figure 2, Item 5) from 28 VDC power input connector (Figure 2, Item 4) and frame. Discard locknuts.

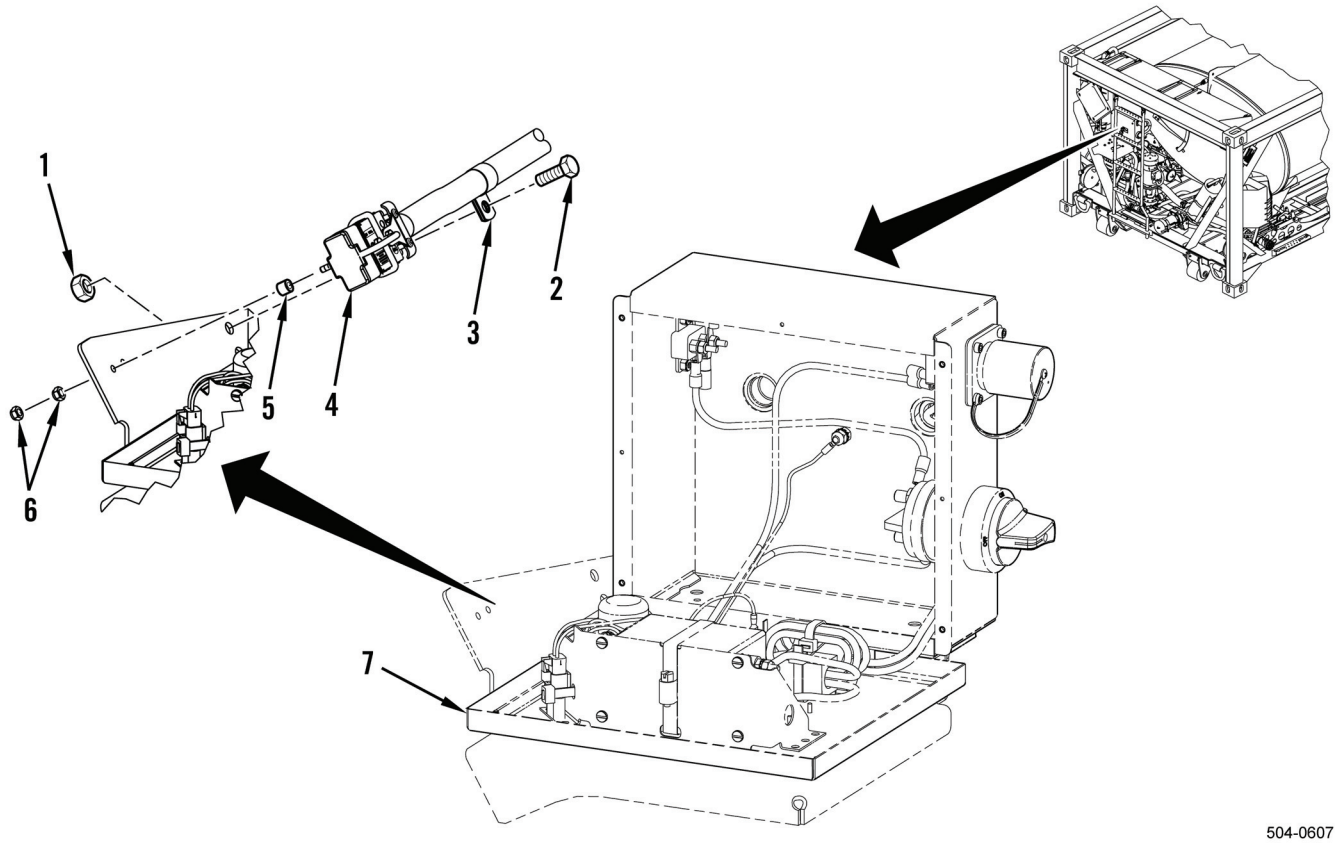


Figure 2. EMI Control Box.

REMOVAL – CONTINUED

NOTE

P-clamp will remain on electrical cable.

12. Remove four bolts (Figure 3, Item 2), eight washers (Figure 3, Item 3), four locknuts (Figure 3, Item 5), and one P-clamp (Figure 3, Item 4) from inside EMI control box (Figure 3, Item 7) and front (Figure 3, Item 6) of EMI control box. Discard locknuts.
13. Remove screw (Figure 3, Item 1) from EMI control box (Figure 3, Item 7).
14. Remove EMI control box (Figure 3, Item 7) from TRM.

END OF TASK

INSTALLATION

NOTE

In order to install the screw (Figure 3, Item 1) into a new EMI control box, a 7/16 in. hole must be drilled on the bottom of the left inside of the EMI control box.

1. Position EMI control box (Figure 3, Item 7) on TRM.
2. Position P-clamp (Figure 3, Item 4) to align with hole of EMI control box (Figure 3, Item 7).

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

3. Apply dielectric grease to threads of screw (Figure 3, Item 1).
4. Install screw (Figure 3, Item 1) in EMI control box (Figure 3, Item 7) and bracket.
5. Install four bolts (Figure 3, Item 2), eight washers (Figure 3, Item 3), and four new locknuts (Figure 3, Item 5) in front (Figure 3, Item 6) and inside of EMI control box (Figure 3, Item 7) and P-clamp (Figure 3, Item 4).
6. Position 28 VDC power input connector (Figure 3, Item 10) on frame.
7. Install bolt (Figure 3, Item 8) and P-clamp (Figure 3, Item 9) in frame with new locknut (Figure 3, Item 13).
8. Install two spacers (Figure 3, Item 11) and four new locknuts (Figure 3, Item 12) onto 28 VDC power input connector (Figure 3, Item 10) and frame.

INSTALLATION – CONTINUED

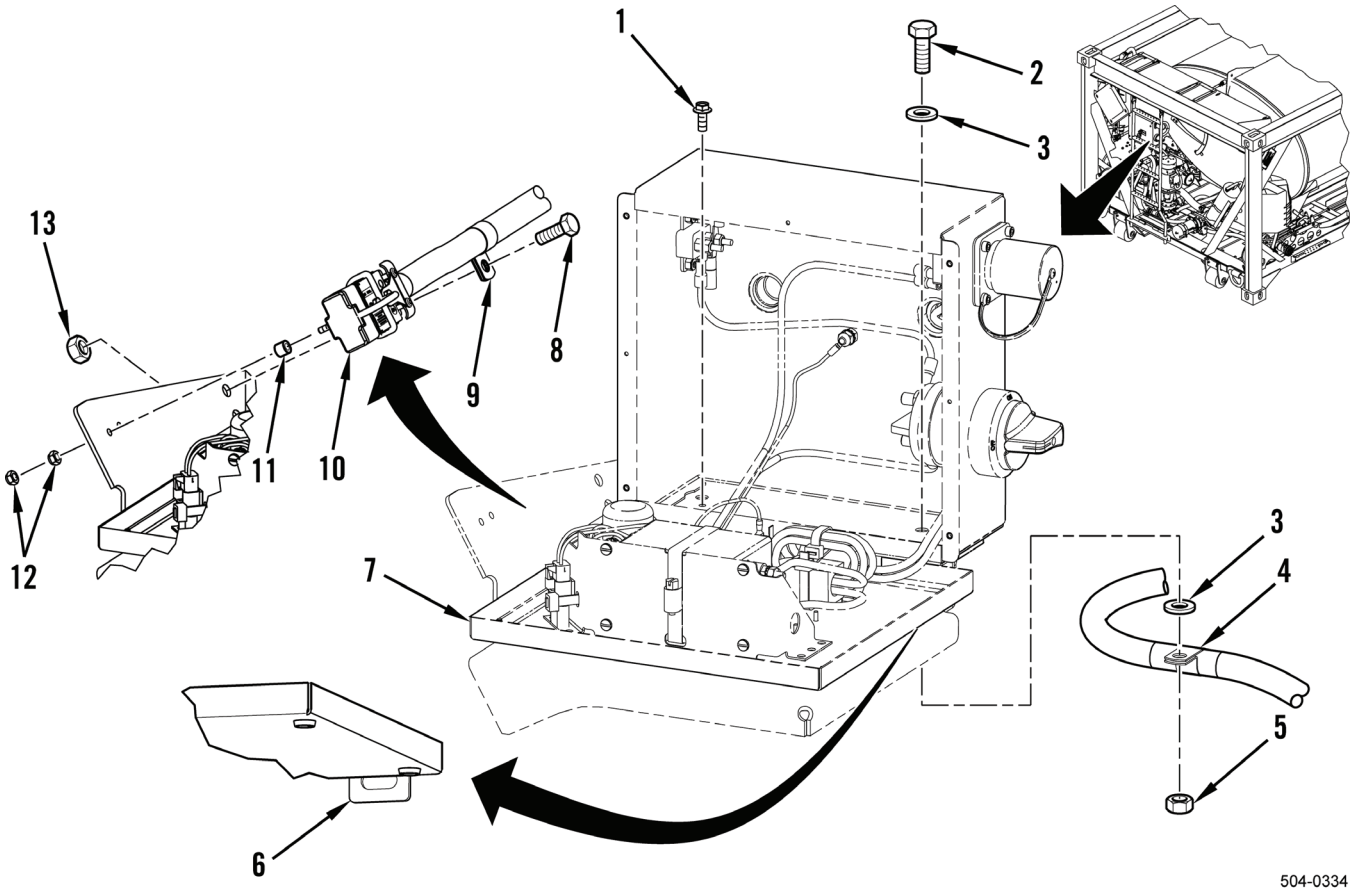


Figure 3. EMI Control Box.

INSTALLATION – CONTINUED

WARNING

Corrosion preventive compound is toxic and an irritant to eyes, skin, and respiratory system. Goggles and gloves must be worn when working with corrosion preventive compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury or death to personnel.

9. Apply a thin coat of corrosion preventive compound to threads of four screws (Figure 4, Item 3).
10. Close EMI control box cover (Figure 4, Item 5), and install four screws (Figure 4, Item 3) and washers (Figure 4, Item 4) in EMI control box.
11. Feed conduit wires (Figure 4, Item 12) through opening in conduit box (Figure 4, Item 2) and conduit nut (Figure 4, Item 9), and install conduit nut onto conduit box.
12. Install bolt (Figure 4, Item 8), two nuts (Figure 4, Item 14), new locknut (Figure 4, Item 18), and two new lockwashers (Figure 4, Item 13) to black conduit wire (Figure 4, Item 12), capacitor (Figure 4, Item 15), and black motor wire (Figure 4, Item 17).

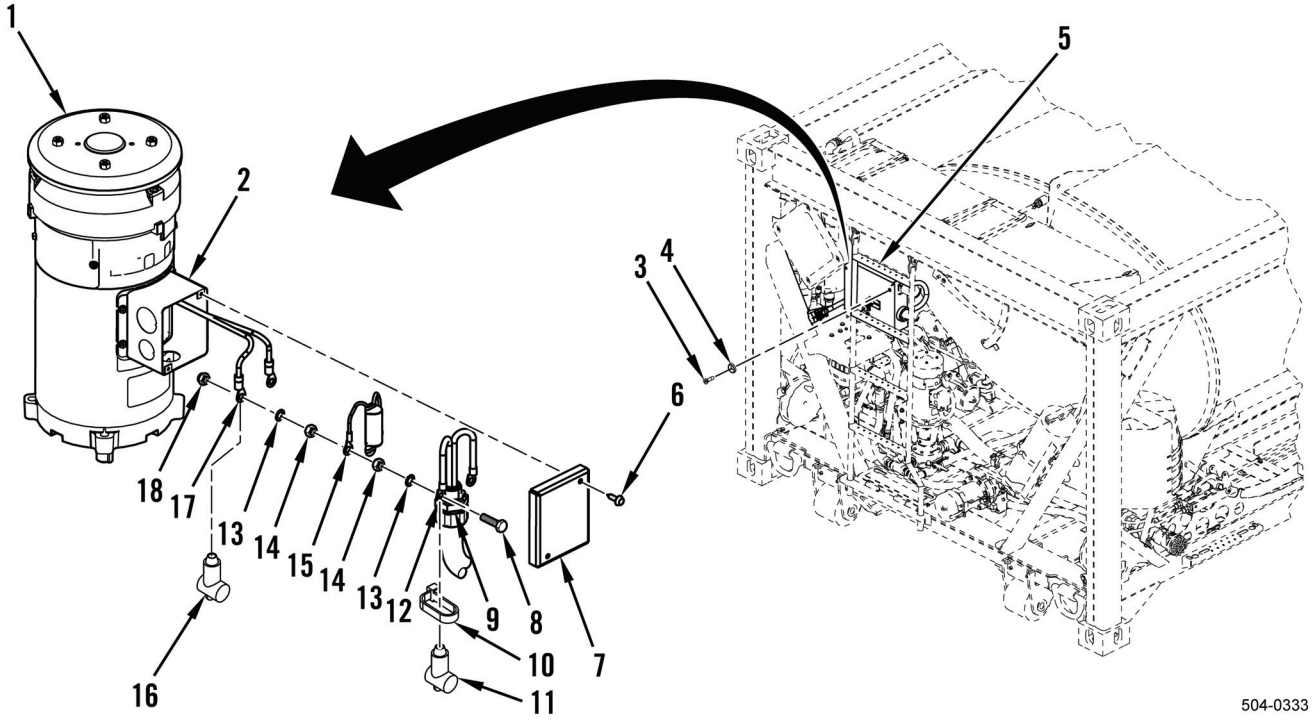


Figure 4. Wiring.

INSTALLATION – CONTINUED

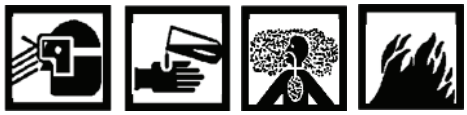
13. Install bolt (Figure 4, Item 8), two nuts (Figure 4, Item 14), new locknut (Figure 4, Item 18), and two new lockwashers (Figure 4, Item 13) to red conduit wire (Figure 4, Item 12), capacitor (Figure 4, Item 15), and red motor wire (Figure 4, Item 17).

CAUTION

Ensure each connection point (nut to nut, bolt to nut) is tight before positioning wire boots. Ensure capacitor is oriented correctly. Failure to comply may result in damage to equipment.

14. Position four wire boots (Figure 4, Items 11 and 16) over wires (Figure 4, Items 12 and 17) and secure all four boots with two new cable ties (Figure 4, Item 10).
15. Position bundle of wires and capacitor (Figure 4, Item 15) gently into conduit box (Figure 4, Item 2).
16. Remove old sealing compound from cover (Figure 4, Item 7) and conduit box (Figure 4, Item 2).
17. Install two screws (Figure 4, Item 6) and cover (Figure 4, Item 7) in conduit box (Figure 4, Item 2) on motor (Figure 4, Item 1).

WARNING



Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

18. Apply sealing compound to top and sides of cover (Figure 4, Item 7).
19. Operate TRM (TM 10-4930-370-10) to check for proper operation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

EMI CONTROL BOX REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Tool kit, blind (WP 0182, Item 11)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Cleaning compound, solvent (WP 0181, Item 2)
Grease, electrically conductive (WP 0181, Item 9)
Nut, self-locking, hexagon (WP 0136, Item 3)
Nut, self-locking, hexagon (WP 0136, Item 70) Qty: 3
Rivet, blind (1/8") (WP 0136, Item 40) Qty: 4
Rivet, solid (5/32") (WP 0136, Item 48) Qty: 3
Washer, lock (WP 0136, Item 4) Qty: 2

References

WP 0136

Equipment Condition

EMI control box components removed (WP 0068)

WARNING

Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam. Failure to comply may result in injury or death to personnel.

DISASSEMBLY

NOTE

Cut and remove cable ties securing wires to ground wire and cable assemblies.

1. Remove locknut (Figure 1, Item 13), two lockwashers (Figure 1, Item 14), and wire (Figure 1, Item 15) from ground terminal (Figure 1, Item 16). Discard lockwashers and locknut.

NOTE

P-clamp will remain on electrical cable.

2. Remove bolt (Figure 1, Item 1), two washers (Figure 1, Item 2), locknut (Figure 1, Item 4), and P-clamp (Figure 1, Item 3) from EMI control box (Figure 1, Item 5) and bracket. Discard locknut.

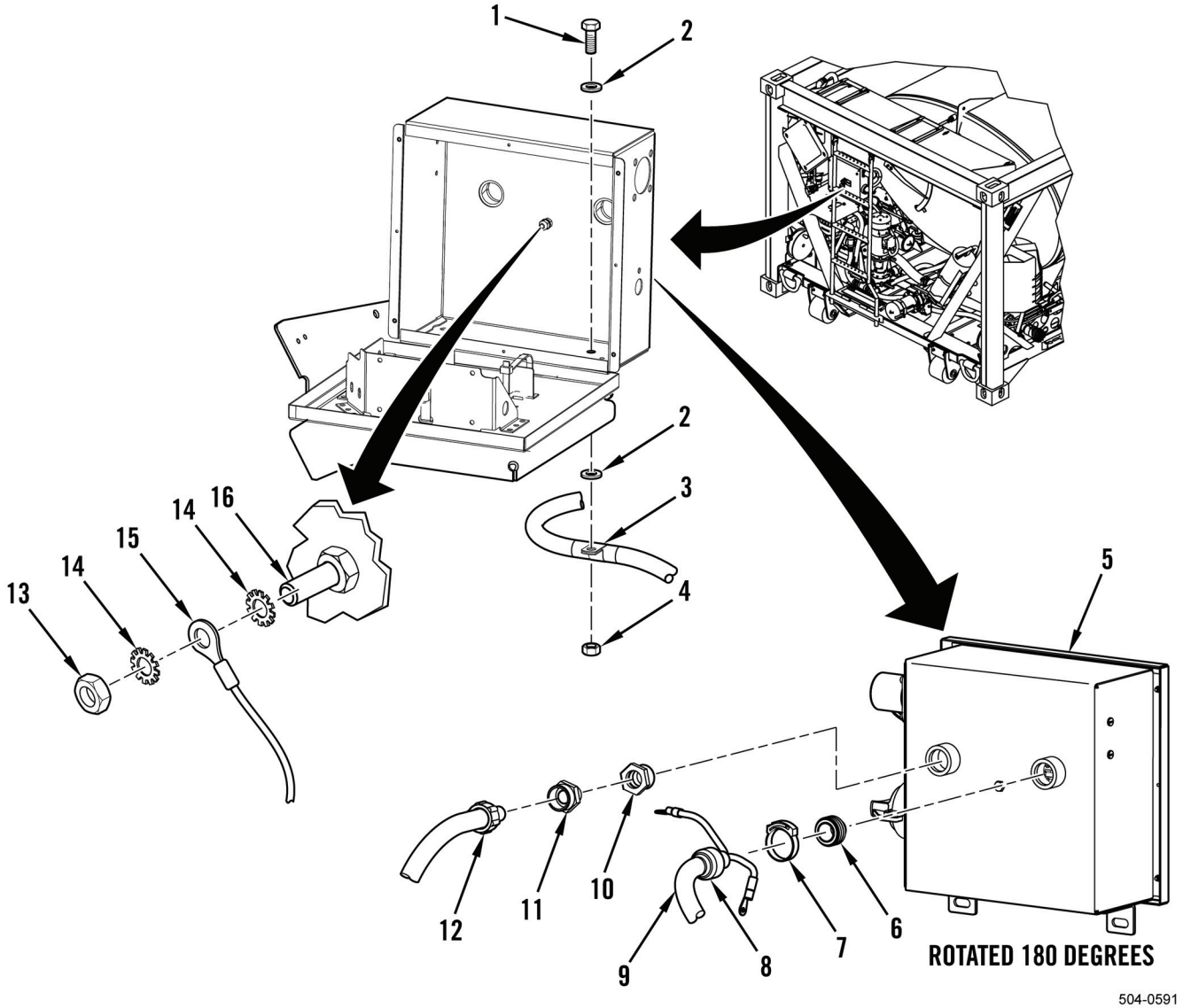


Figure 1. Wiring.

DISASSEMBLY – CONTINUED

3. Remove nut (Figure 1, Item 11) from conduit fitting (Figure 1, Item 12).
4. Remove conduit fitting (Figure 1, Item 12) from bushing (Figure 1, Item 10) while feeding wires through bushing and opening at rear of EMI control box (Figure 1, Item 5).
5. Remove clamp (Figure 1, Item 7) from nut (Figure 1, Item 8) and slave cable assembly.
6. Pull braided shield (Figure 1, Item 9) away from bushing (Figure 1, Item 6).
7. Remove nut (Figure 1, Item 8) with slave cable assembly from EMI box (Figure 1, Item 5).
8. Remove bushing (Figure 1, Item 6) from EMI box (Figure 1, Item 5).
9. Remove three bolts (Figure 2, Item 4), six washers (Figure 2, Item 3), and three locknuts (Figure 2, Item 6) from EMI control box (Figure 2, Item 5) and bracket. Discard locknuts.
10. Remove screw (Figure 2, Item 2) from EMI control box (Figure 2, Item 5).
11. Remove EMI control box (Figure 2, Item 5) from TRM and place on level surface.
12. Remove three rivets (Figure 2, Item 7) and cover (Figure 2, Item 8) from EMI control box (Figure 2, Item 5). Discard rivets.
13. Remove four rivets (Figure 2, Item 1) and data plate (Figure 2, Item 9) from cover (Figure 2, Item 8). Discard rivets.

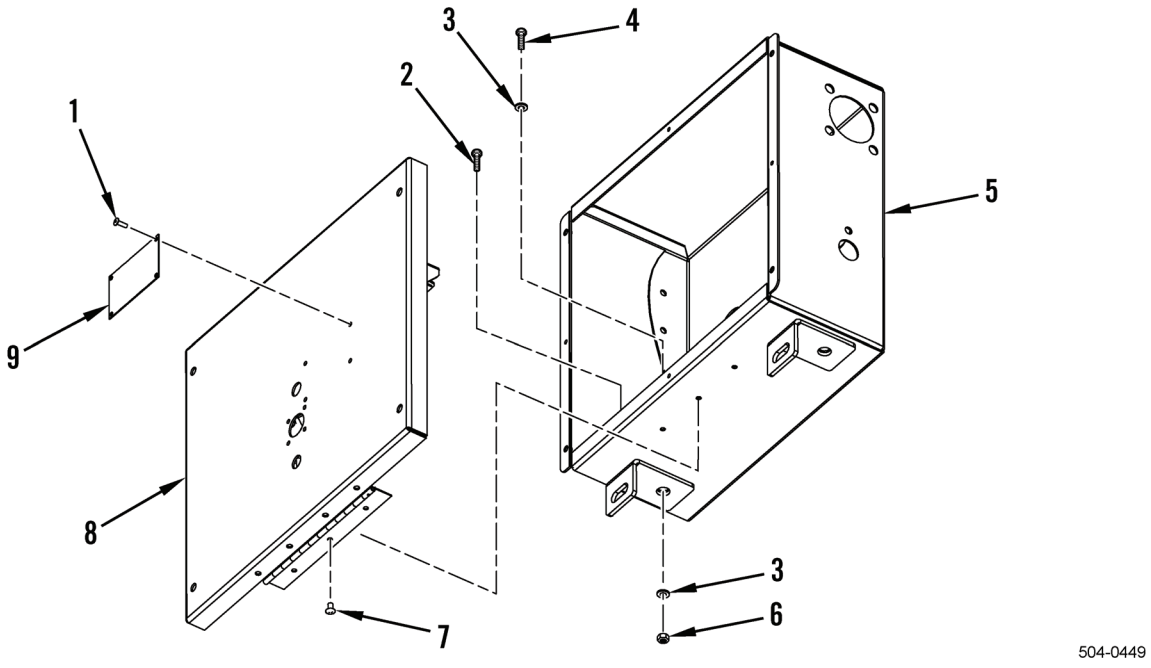


Figure 2. EMI Control Box.

DISASSEMBLY – CONTINUED

NOTE

The Clean task in this WP will be performed if the gaskets are removed from the cover. The Clean task may be skipped if not removing the gaskets from the cover.

14. Inspect cover (Figure 3, Item 8) gaskets for damage. Remove gaskets if damaged.

END OF TASK

CLEANING

WARNING

Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

1. Remove gasket debris from cover (Figure 3, Item 8).
2. Clean cover (Figure 3, Item 8) with cleaning cloth and solvent cleaning compound.
3. Allow cover to dry thoroughly.

END OF TASK

ASSEMBLY

1. Install four new rivets (Figure 3, Item 1) and data plate (Figure 3, Item 9) onto cover (Figure 3, Item 8). Install new gaskets onto cover if removed during Removal task in this WP.
2. Install three new rivets (Figure 3, Item 7) and cover (Figure 3, Item 8) onto EMI control box (Figure 3, Item 5).
3. Position EMI control box (Figure 3, Item 5) on TRM.

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

4. Apply dielectric grease to threads of screw (Figure 3, Item 2).
5. Install screw (Figure 3, Item 2) in EMI control box (Figure 3, Item 5).
6. Install three bolts (Figure 3, Item 4), six washers (Figure 3, Item 3), and three new locknuts (Figure 3, Item 6) onto EMI control box (Figure 3, Item 5) and bracket.

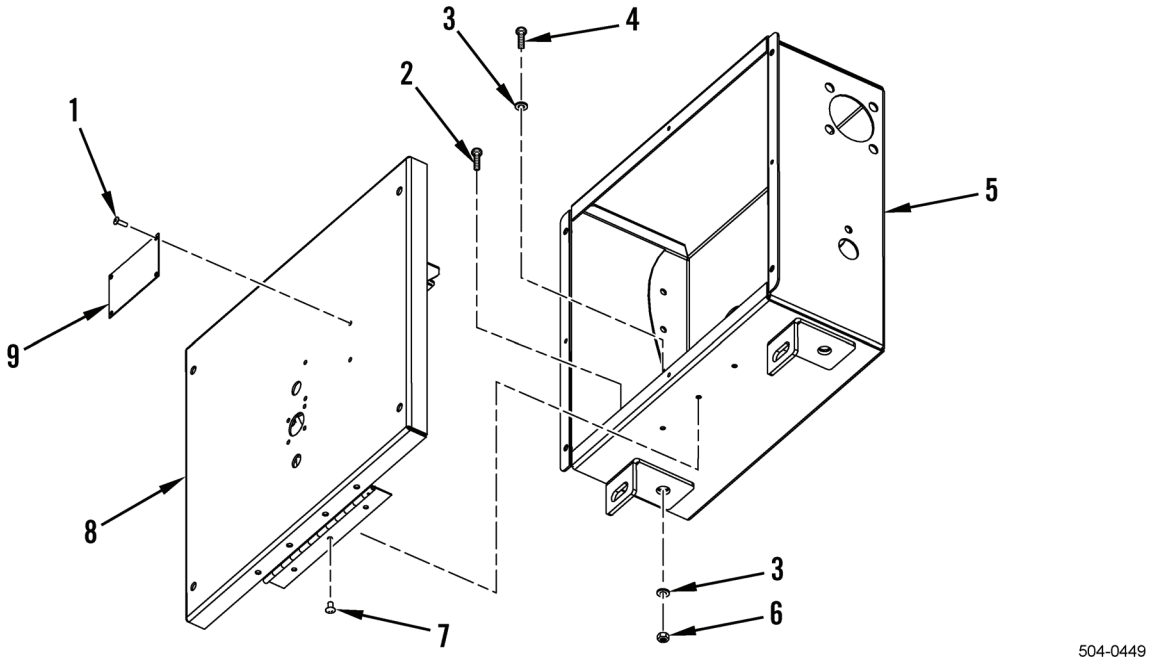


Figure 3. EMI Control Box.

ASSEMBLY – CONTINUED

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

7. Apply dielectric grease to end of wire (Figure 4, Item 15) and threads of ground terminal (Figure 4, Item 16).
8. Install wire (Figure 4, Item 15), two new lockwashers (Figure 4, Item 14), and new locknut (Figure 4, Item 13) onto ground terminal (Figure 4, Item 16).
9. Install bushing (Figure 4, Item 6) on EMI box (Figure 4, Item 5).
10. Feed wires into EMI box (Figure 4, Item 5) and position until cable insulation enters box.
11. Tighten nut (Figure 4, Item 8) of slave cable assembly, and position braided shield (Figure 4, Item 9) over bushing (Figure 4, Item 6).
12. Install clamp (Figure 4, Item 7) on braided shield (Figure 4, Item 9).
13. Feed wires through bushing (Figure 4, Item 10) and opening at rear of EMI control box (Figure 4, Item 5), and install conduit fitting (Figure 4, Item 12) into bushing.
14. Tighten nut (Figure 4, Item 11) on conduit fitting (Figure 4, Item 12).
15. Install P-clamp (Figure 4, Item 3) on EMI control box (Figure 4, Item 5) and bracket with bolt (Figure 4, Item 1), two washers (Figure 4, Item 2), and new locknut (Figure 4, Item 4).

ASSEMBLY – CONTINUED

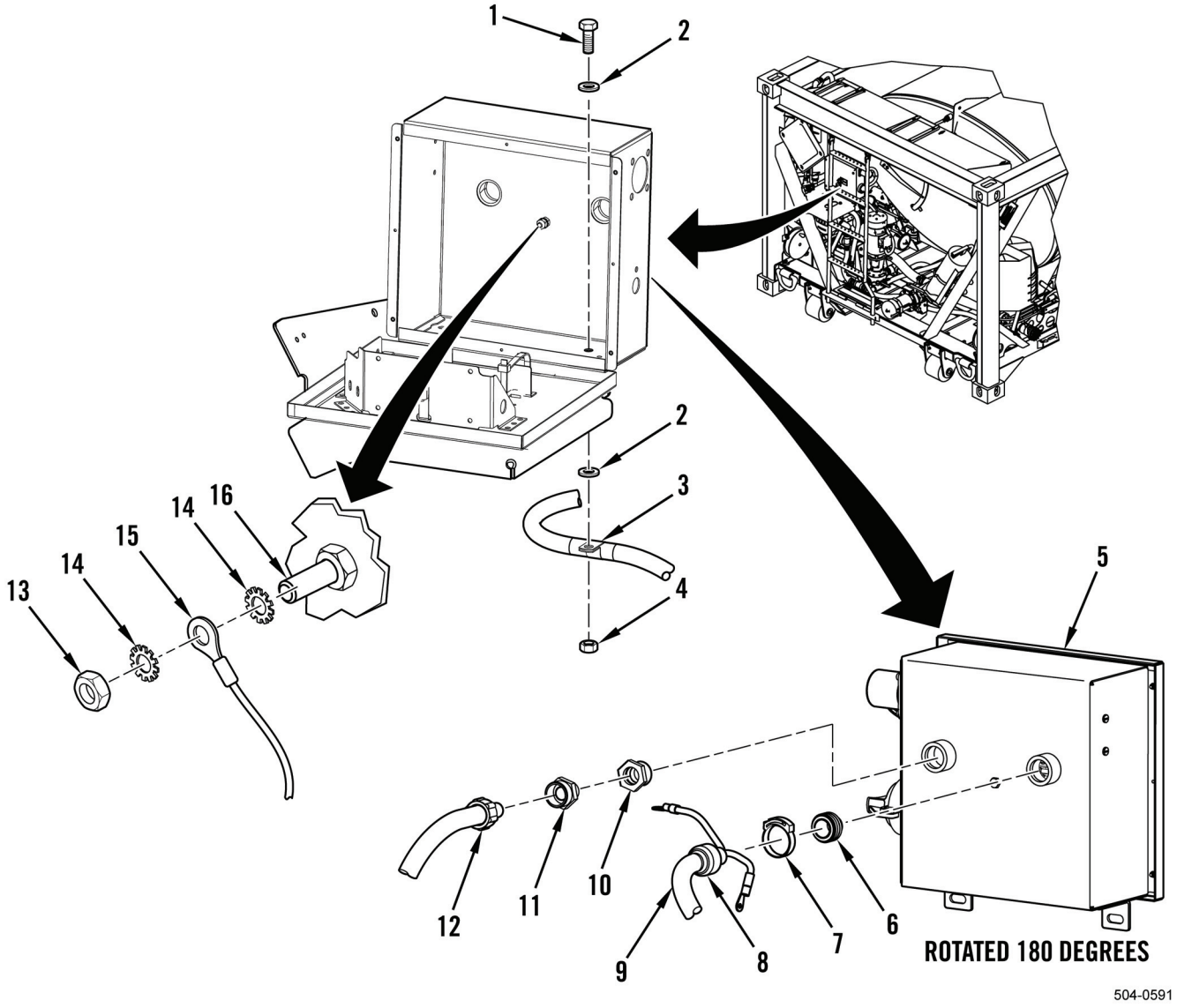


Figure 4. Wiring.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install EMI control box components (WP 0068).
2. Operate TRM (TM 10-4930-370-10) to check for proper operation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

EMI CONTROL BOX COMPONENTS REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Corrosion preventive compound (WP 0181, Item 5)
Grease, electrically conductive (WP 0181, Item 9)
Strap, tiedown (WP 0181, Item 22)
Wire marker books (WP 0181, Item 23)
Locknut (WP 0136, Item 57) Qty: 2
Nut, self-locking, hexagon (WP 0136, Item 3) Qty: 7
Nut, self-lock, hexagon (WP 0136, Item 26) Qty: 2
Nut, self-lock, hexagon (WP 0136, Item 49) Qty: 4

Materials/Parts—Continued

Nut, self-locking, hexagon (WP 0136, Item 7) Qty: 10
Nut, self-locking, hexagon (WP 0136, Item 24) Qty: 2
Tie, cable (WP 0136, Item 6)
Washer, lock (WP 0136, Item 4) Qty: 7
Washer, lock (WP 0136, Item 25) Qty: 2
Washer, lock (WP 0136, Item 27) Qty: 2
Washer, lock (WP 0136, Item 36) Qty: 2
Washer, lock (WP 0136, Item 39) Qty: 2

References

WP 0136
FO-1

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

Ensure all sources of power are disconnected from the TRM before proceeding with maintenance. Failure to comply may result in injury or death to personnel or damage to equipment.

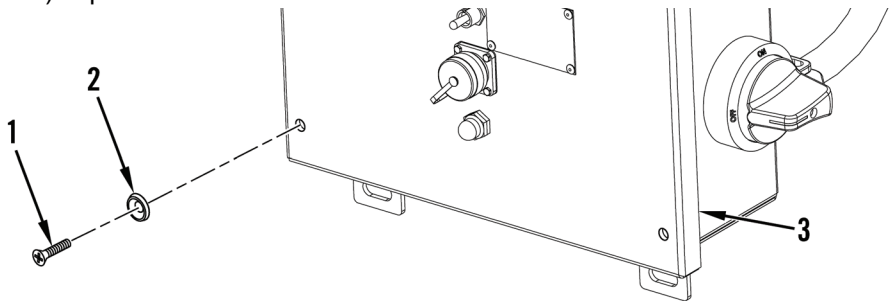
NOTE

Use FO-1 to assist in locating wires during removal and installation of components.

REMOVAL

Opening EMI Control Box Cover

Remove four screws (Figure 1, Item 1) and washers (Figure 1, Item 2) from EMI control box cover (Figure 1, Item 3). Open EMI control box cover.



504-0615

Figure 1. EMI Control Box.

END OF TASK

REMOVAL – CONTINUED

Receptacle Removal

NOTE

One of the three wires goes to the 2A circuit breaker and will not be removed with the receptacle.

1. Remove two screws (Figure 2, Item 3) and three wires (Figure 2, Items 2, 4, and 5) from toggle switch (Figure 2, Item 6).

NOTE

Tag wires prior to removal to aid in installation.

2. Remove four locknuts (Figure 2, Item 1), four screws (Figure 2, Item 8), ground wire (Figure 2, Item 13), cap (Figure 2, Item 7), and wire (Figure 2, Item 9) from receptacle (Figure 2, Item 10). Discard locknuts.
3. Remove receptacle (Figure 2, Item 10) and gasket (Figure 2, Item 11) from EMI control box cover (Figure 2, Item 12).

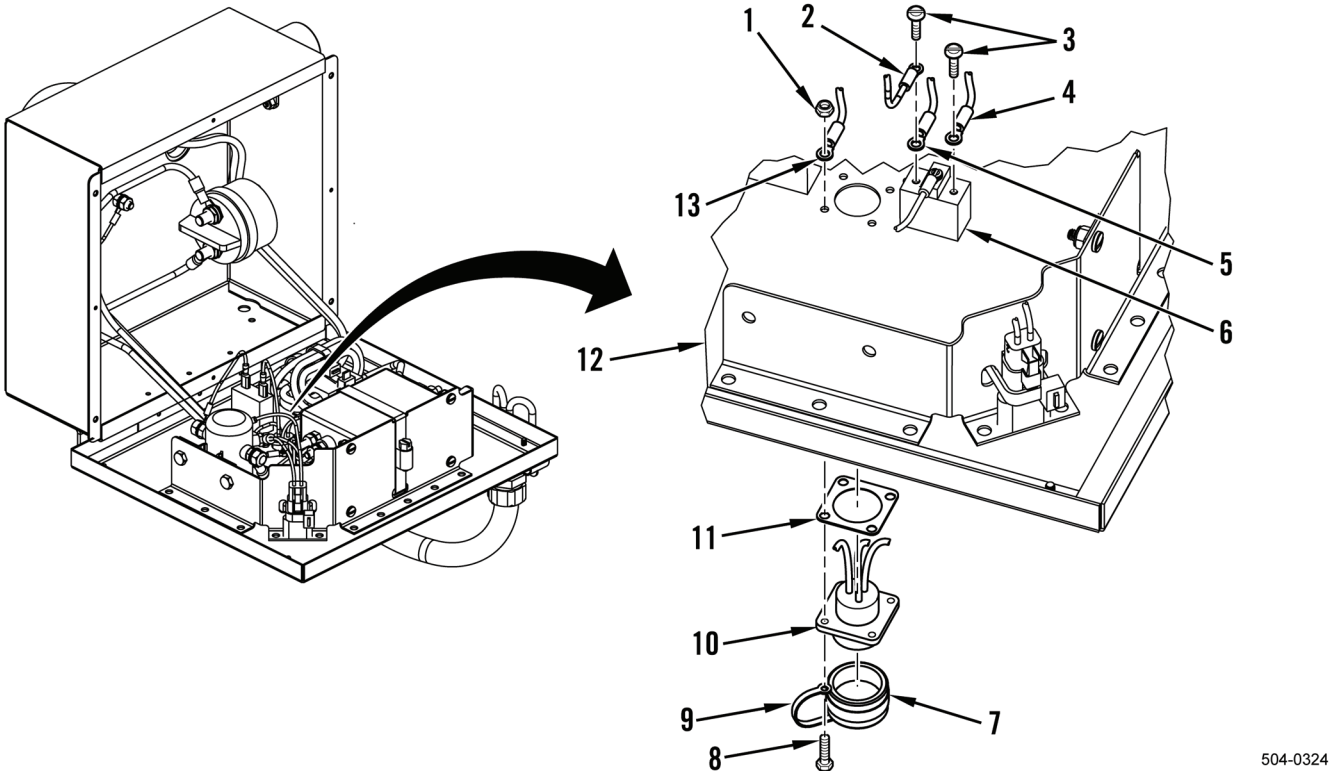


Figure 2. Receptacle.

END OF TASK

REMOVAL – CONTINUED

Relay Removal

NOTE

Tag wires prior to removal to aid in installation.

1. Remove two locknuts (Figure 3, Item 10), two lockwashers (Figure 3, Item 11), and three wires (Figure 3, Items 12, 13, and 15) from two control terminals (Figure 3, Item 14). Discard lockwashers and locknuts.
2. Remove two locknuts (Figure 3, Item 3), two lockwashers (Figure 3, Item 4), and three wires (Figure 3, Items 5, 8, and 9) from two power terminals (Figure 3, Item 6). Discard locknuts and lockwashers.
3. Remove two locknuts (Figure 3, Item 17), two washers (Figure 3, Item 16), two bolts (Figure 3, Item 18), and relay (Figure 3, Item 7) from bracket (Figure 3, Item 1) of EMI control box cover (Figure 3, Item 2). Discard locknuts.

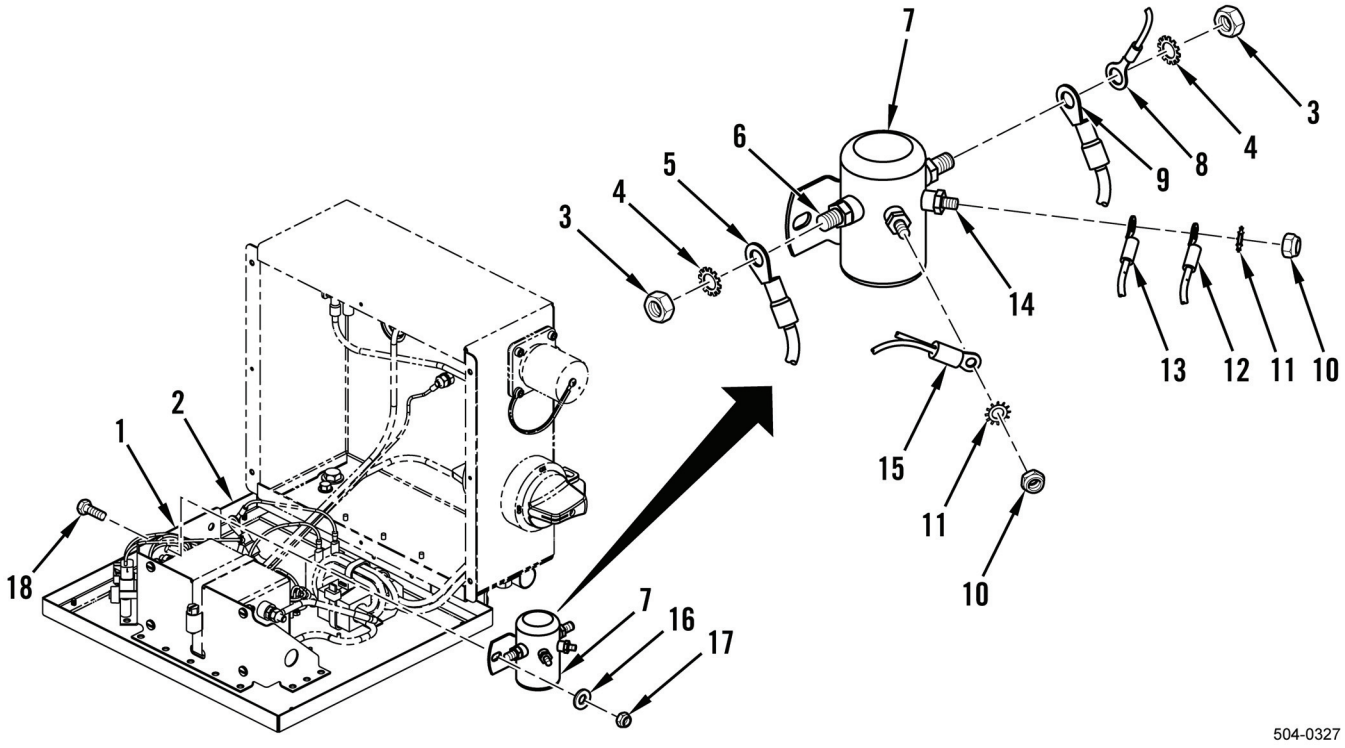


Figure 3. Relay.

END OF TASK

REMOVAL – CONTINUED

Toggle Switch Removal

NOTE

- Tag wires prior to removal to aid in installation.
- Three of the wires on the toggle switch will already be removed if the receptacle is removed.
- There is an additional nut on the toggle switch stem that will not be removed.

1. Remove three screws (Figure 4, Item 2) and four wires (Figure 4, Items 1, 3, 4, and 5) from toggle switch (Figure 4, Item 6).
2. Remove nut (Figure 4, Item 8) from toggle switch (Figure 4, Item 6).
3. Remove toggle switch (Figure 4, Item 6) and internal tooth washer (Figure 4, Item 7) from EMI control box cover (Figure 4, Item 9).

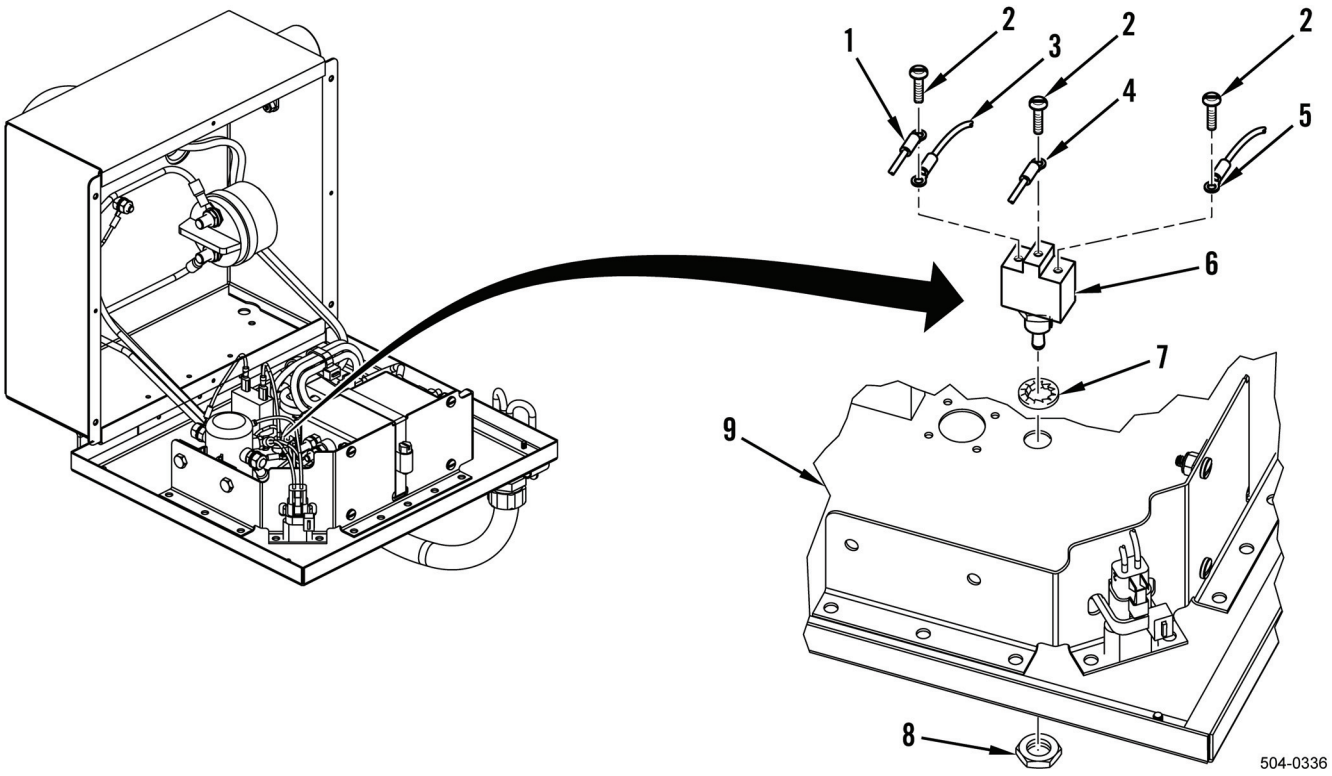


Figure 4. Toggle Switch.

END OF TASK

REMOVAL – CONTINUED

Diode Assembly Removal

NOTE

- Tag wires prior to removal to aid in installation.
- The wires on the control terminals will already be removed if the relay is removed.

1. Remove two locknuts (Figure 5, Item 12), two lockwashers (Figure 5, Item 10), and three wires (Figure 5, Items 9 and 13) from two control terminals (Figure 5, Item 11). Discard locknuts and lockwashers.
2. Remove locknut (Figure 5, Item 8), lockwasher (Figure 5, Item 7), and two wires (Figure 5, Items 5 and 6) from EMI filter terminal (Figure 5, Item 4). Discard locknut and lockwasher.
3. Remove cable tie (Figure 5, Item 3) and diode assembly (Figure 5, Item 2) from bracket (Figure 5, Item 1). Discard cable tie.

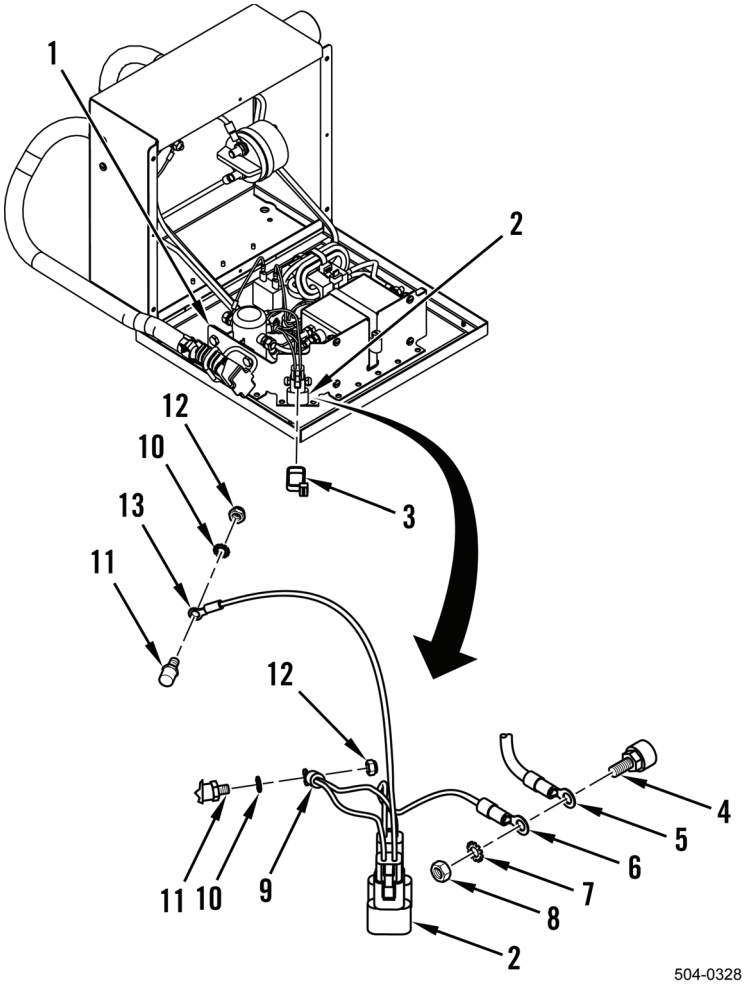


Figure 5. Diode Assembly.

END OF TASK

REMOVAL – CONTINUED

EMI Filter Removal

NOTE

- Tag wires prior to removal to aid in installation.
- Two wires will already be removed if the diode assembly is removed.

1. Remove five locknuts (Figure 6, Item 7), five lockwashers (Figure 6, Item 6), and six wires (Figure 6, Items 4, 5, and 10) from five terminals (Figure 6, Item 3). Discard locknuts and lockwashers.
2. Remove clamp (Figure 6, Item 2) from EMI filter (Figure 6, Item 8).
3. Remove four screws (Figure 6, Item 11), four locknuts (Figure 6, Item 9), and EMI filter (Figure 6, Item 8) from bracket (Figure 6, Item 1). Discard locknuts.

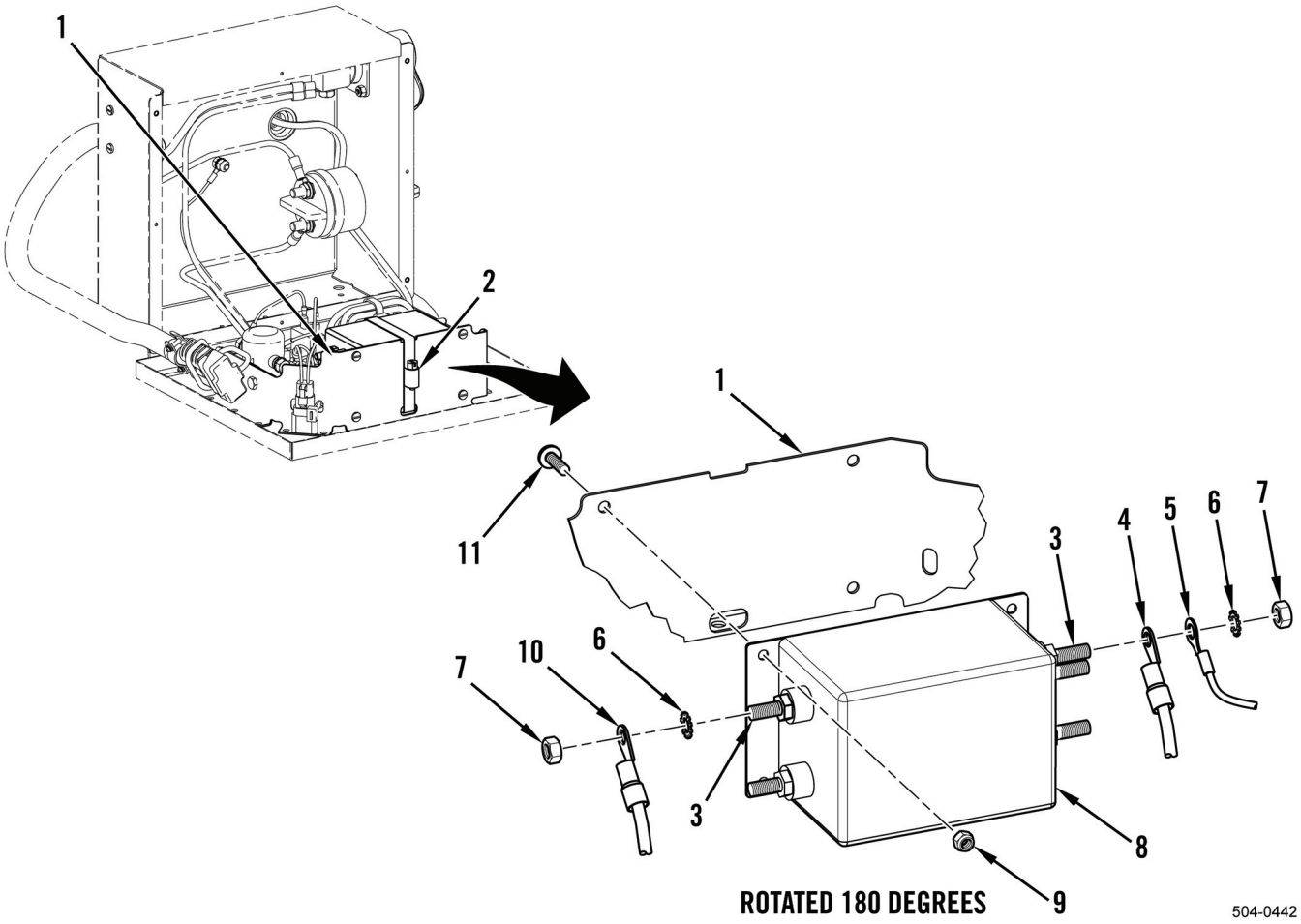


Figure 6. EMI Filter.

END OF TASK

REMOVAL – CONTINUED

2A Circuit Breaker Removal

NOTE

Tag wires prior to removal to aid in installation.

1. Remove two wires (Figure 7, Item 1) from circuit breaker (Figure 7, Item 2).
2. Remove seal nut (Figure 7, Item 3) and circuit breaker (Figure 7, Item 2) from EMI control box cover (Figure 7, Item 4).

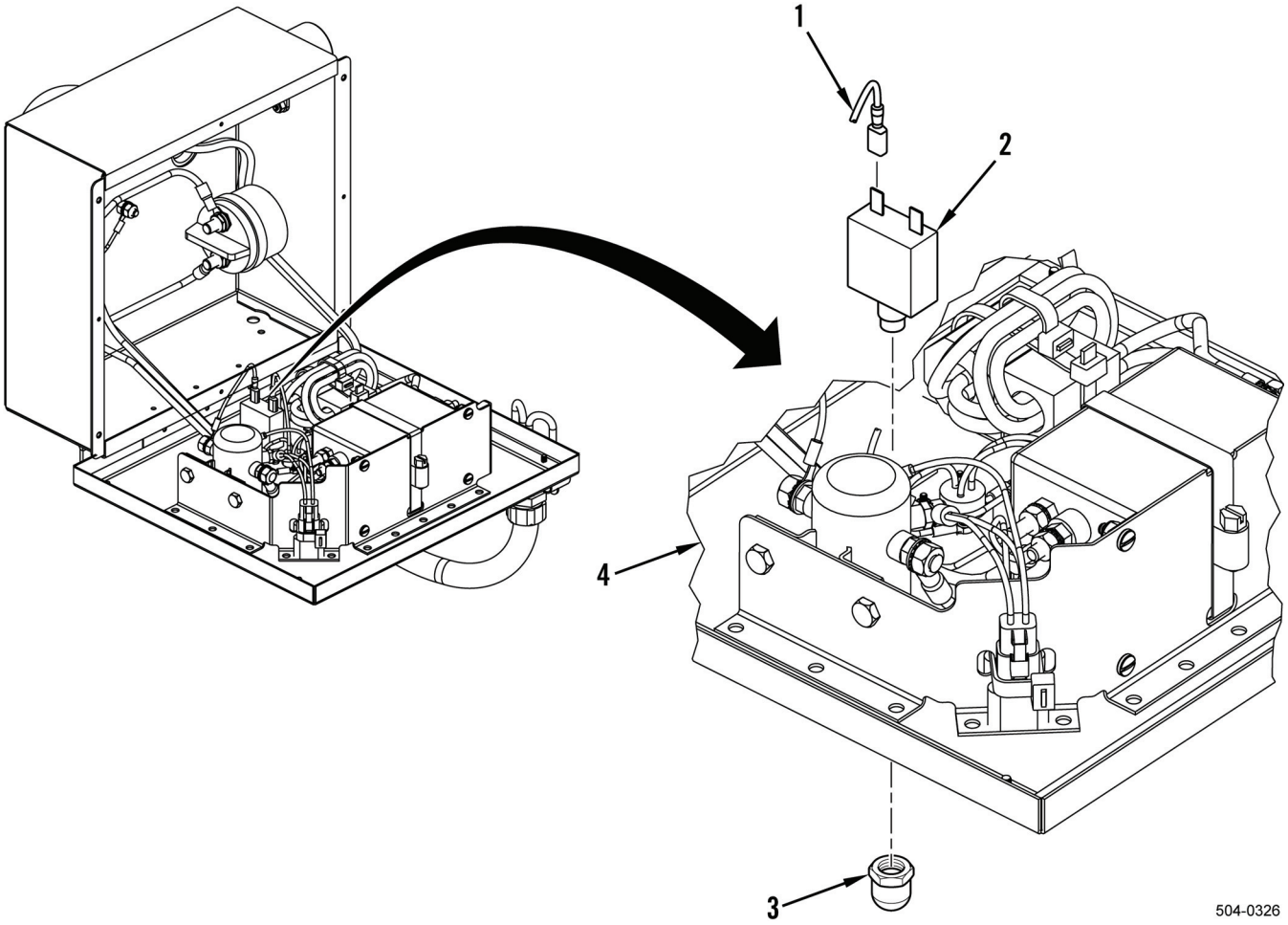


Figure 7. 2A Circuit Breaker.

END OF TASK

REMOVAL – CONTINUED

Ferrites Removal

1. Remove cable tie (Figure 8, Item 3) from wire loop (Figure 8, Item 4).
2. Remove cable tie (Figure 8, Item 1) from two ferrites (Figure 8, Item 6) and bracket (Figure 8, Item 2).

NOTE

Each ferrite consists of two halves that open and allow the ferrite to be removed from the wires.

3. Remove two ferrites (Figure 8, Item 6) from two wires (Figure 8, Item 5).

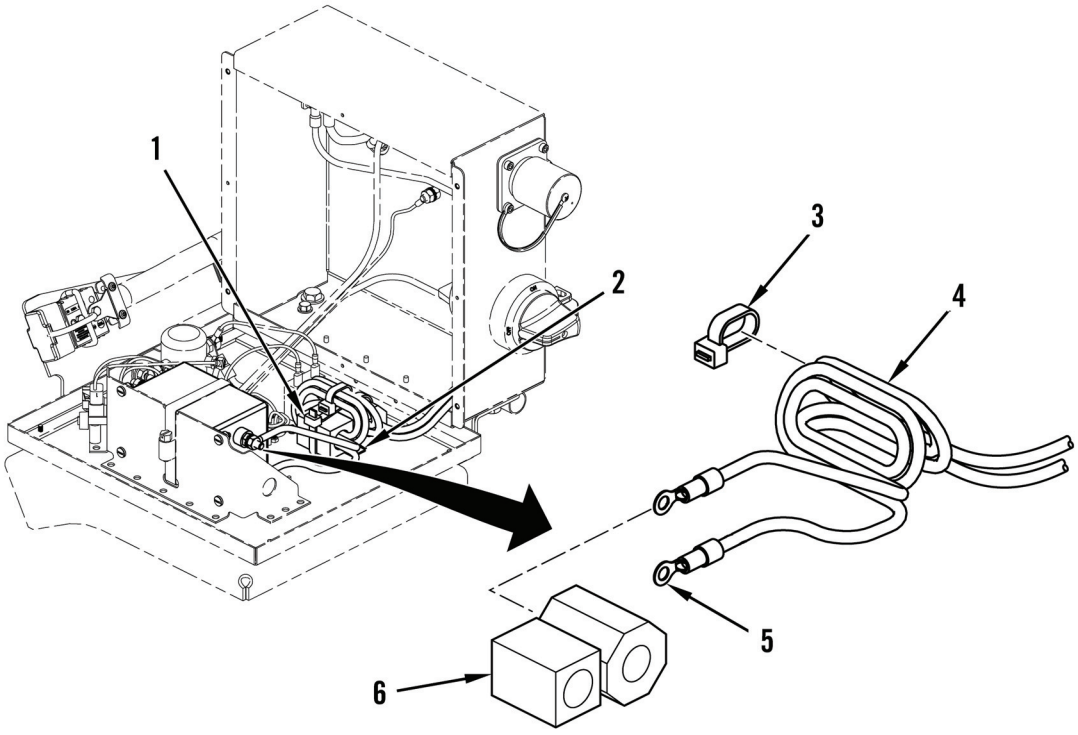


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Figure 8. Ferrites.

END OF TASK

REMOVAL – CONTINUED

NATO Slave Connector Removal

NOTE

Tag wires prior to removal to aid in installation.

1. Remove screw (Figure 9, Item 6), lockwasher (Figure 9, Item 5), and two wires (Figure 9, Items 11 and 12) from NATO slave connector (Figure 9, Item 7). Discard lockwasher.
2. Remove screw (Figure 9, Item 6), lockwasher (Figure 9, Item 5), and wire (Figure 9, Item 4) from NATO slave connector (Figure 9, Item 7). Discard lockwasher.

NOTE

Cable tether for NATO slave connector cap (Figure 9, Item 8) is secured with one of the four screws securing NATO slave connector to EMI control box cover.

3. Stow cap (Figure 9, Item 8) on NATO slave connector (Figure 9, Item 7) prior to removing screws (Figure 9, Item 9).
4. Remove four screws (Figure 9, Item 9), locknuts (Figure 9, Item 1), and cable tether (Figure 9, Item 10) from NATO slave connector (Figure 9, Item 7) and EMI control box (Figure 9, Item 13). Discard locknuts.
5. Remove NATO slave connector (Figure 9, Item 7), insulator (Figure 9, Item 2), and gasket (Figure 9, Item 3) from EMI control box (Figure 9, Item 13).

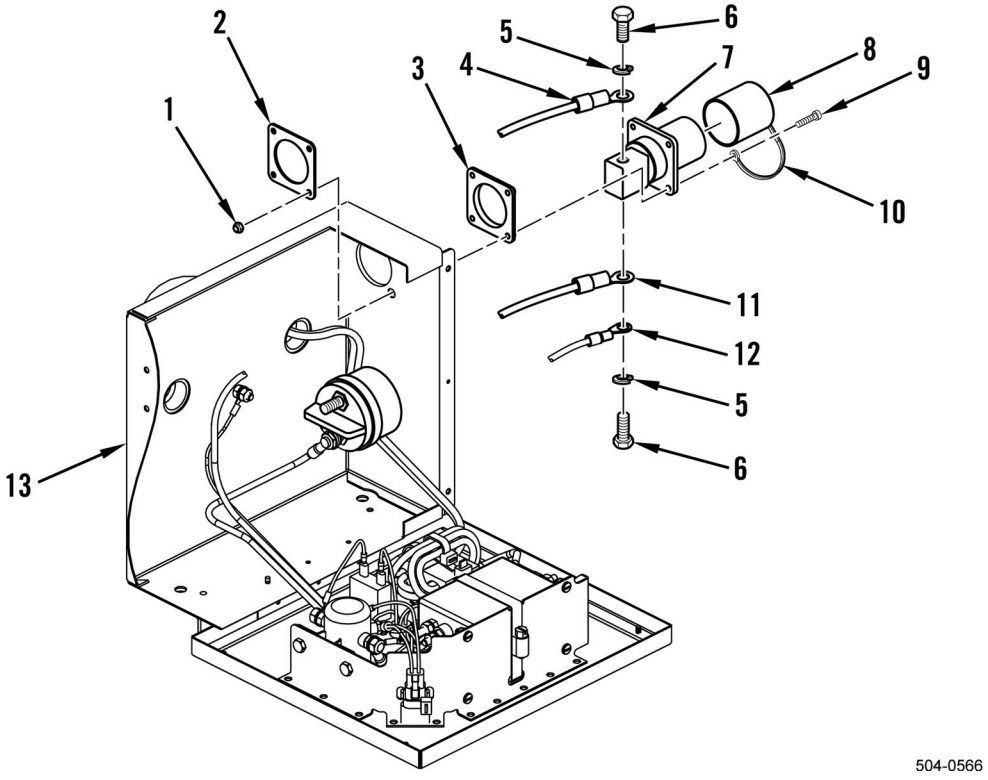


Figure 9. NATO Slave Connector.

END OF TASK

REMOVAL – CONTINUED

50A Circuit Breaker Removal

NOTE

Tag wires prior to removal to aid in installation.

1. Remove two locknuts (Figure 10, Item 19) and three wires (Figure 10, Items 20, 25, and 26) from 50A circuit breaker (Figure 10, Item 21). Discard locknuts.
2. Remove two screws (Figure 10, Item 22), two locknuts (Figure 10, Item 24), and 50A circuit breaker (Figure 10, Item 21) from EMI control box (Figure 10, Item 23). Discard locknuts.

END OF TASK

Master Disconnect Switch Removal

NOTE

Tag wires prior to removal to aid in installation.

1. Remove two nuts (Figure 10, Item 27), two lockwashers (Figure 10, Item 28), and two wires (Figure 10, Item 29) from master disconnect switch (Figure 10, Item 18). Discard lockwashers.
2. Remove plastic cap (Figure 10, Item 12), screw (Figure 10, Item 13), and knob (Figure 10, Item 14) from master disconnect switch (Figure 10, Item 18).
3. Remove nut (Figure 10, Item 15), bezel (Figure 10, Item 16), internal tooth washer (Figure 10, Item 17), and master disconnect switch (Figure 10, Item 18) from EMI control box (Figure 10, Item 23).

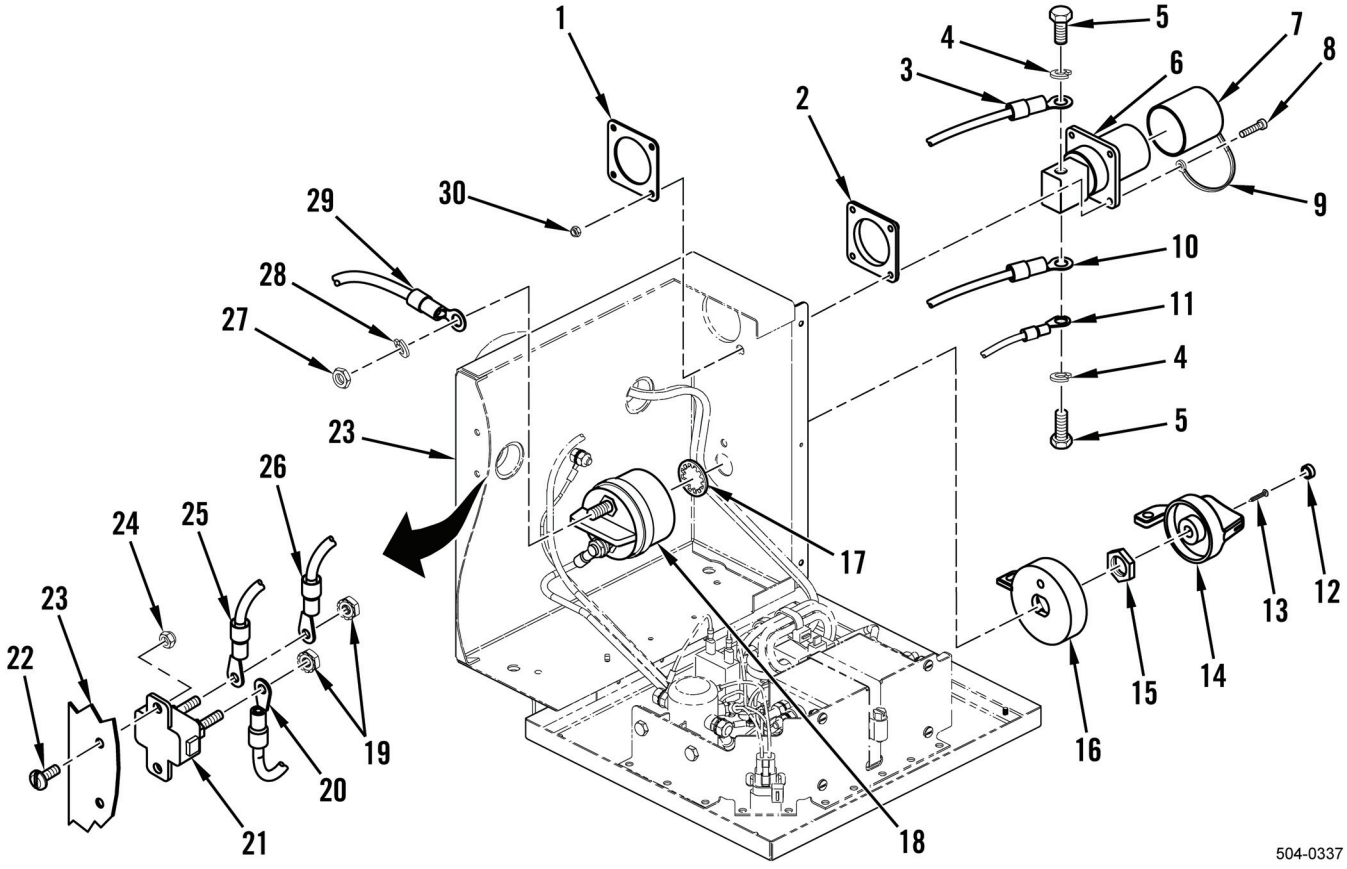


Figure 10. NATO Slave Connector, 50A Circuit Breaker, and Master Disconnect Switch.

END OF TASK

INSTALLATION

CAUTION

Wire positions and routing must clear cover open and close points. Failure to comply may result in damage to equipment.

Master Disconnect Switch Installation

1. Install master disconnect switch (Figure 10, Item 18), internal tooth washer (Figure 10, Item 17), and bezel (Figure 10, Item 16) on EMI control box (Figure 10, Item 23) with nut (Figure 10, Item 15).
2. Install knob (Figure 10, Item 14) on master disconnect switch (Figure 10, Item 18) with screw (Figure 10, Item 13), and insert plastic cap (Figure 10, Item 12) into knob (Figure 10, Item 14).
3. Install two wires (Figure 10, Item 29) on master disconnect switch (Figure 10, Item 18) with two nuts (Figure 10, Item 27) and two new lockwashers (Figure 10, Item 28).

END OF TASK

50A Circuit Breaker Installation

1. Position 50A circuit breaker (Figure 10, Item 21) with reset facing toward EMI control box (Figure 10, Item 23) opening.
2. Install 50A circuit breaker (Figure 10, Item 21) on EMI control box (Figure 10, Item 23) with two screws (Figure 10, Item 22) and two new locknuts (Figure 10, Item 24).
3. Install three wires (Figure 10, Items 20, 25, and 26) on 50A circuit breaker (Figure 10, Item 21) with two new locknuts (Figure 10, Item 19).

END OF TASK

NATO Slave Connector Installation

WARNING

Make sure NATO slave connector positive (+) terminal is facing top of EMI control box. Failure to comply may result in injury to personnel or damage to equipment.

1. Install NATO slave connector (Figure 10, Item 6), gasket (Figure 10, Item 2), and insulator (Figure 10, Item 1) on EMI control box (Figure 10, Item 23).

NOTE

One of the four screws securing NATO slave connector also secures cable tether.

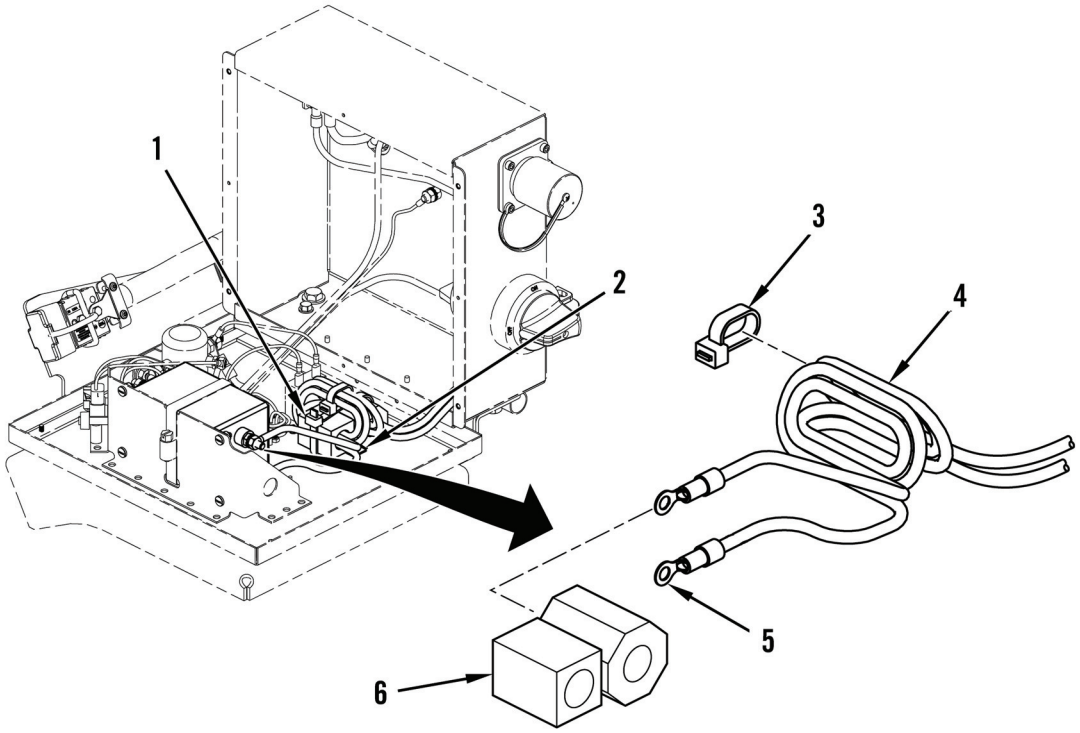
2. Install four screws (Figure 10, Item 8), four new locknuts (Figure 10, Item 30), and cable tether (Figure 10, Item 9) with cap (Figure 10, Item 7) into NATO slave connector (Figure 10, Item 6) and EMI control box (Figure 10, Item 23).
3. Install screw (Figure 10, Item 5), new lockwasher (Figure 10, Item 4), and wire (Figure 10, Item 3) on NATO slave connector (Figure 10, Item 6).
4. Install screw (Figure 10, Item 5), new lockwasher (Figure 10, Item 4), and two wires (Figure 10, Items 10 and 11) on NATO slave connector (Figure 10, Item 6).

END OF TASK

INSTALLATION – CONTINUED

Ferrites Installation

1. Install two ferrites (Figure 11, Item 6) onto wires (Figure 11, Item 5), and secure ferrites to bracket (Figure 11, Item 2) with cable tie (Figure 11, Item 1).
2. Install cable tie (Figure 11, Item 3) on wire loop (Figure 11, Item 4).



504-0332

Figure 11. Ferrites.

END OF TASK

INSTALLATION – CONTINUED

2A Circuit Breaker Installation

1. Install seal nut (Figure 12, Item 3) and circuit breaker (Figure 12, Item 2) on EMI control box cover (Figure 12, Item 4).
2. Install two wires (Figure 12, Item 1) on circuit breaker (Figure 12, Item 2).

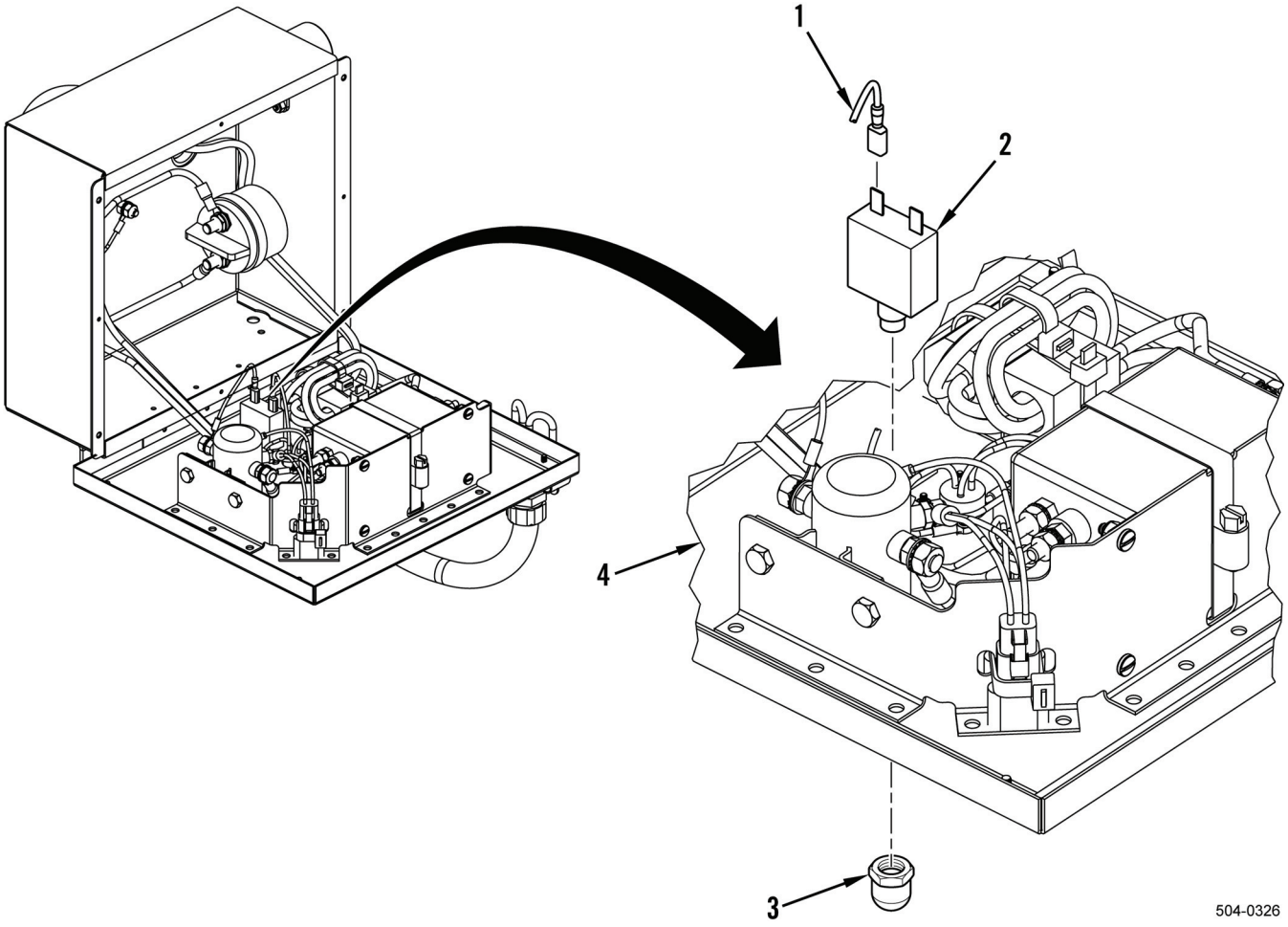


Figure 12. 2A Circuit Breaker.

END OF TASK

INSTALLATION – CONTINUED

EMI Filter Installation

1. Install EMI filter (Figure 13, Item 8) on bracket (Figure 13, Item 1) with four screws (Figure 13, Item 11) and four new locknuts (Figure 13, Item 9).
2. Install clamp (Figure 13, Item 2) on EMI filter (Figure 13, Item 8) and bracket (Figure 13, Item 1).
3. Install six wires (Figure 13, Items 4, 5, and 10) on five terminals (Figure 13, Item 3) with five new locknuts (Figure 13, Item 7) and five new lockwashers (Figure 13, Item 6).

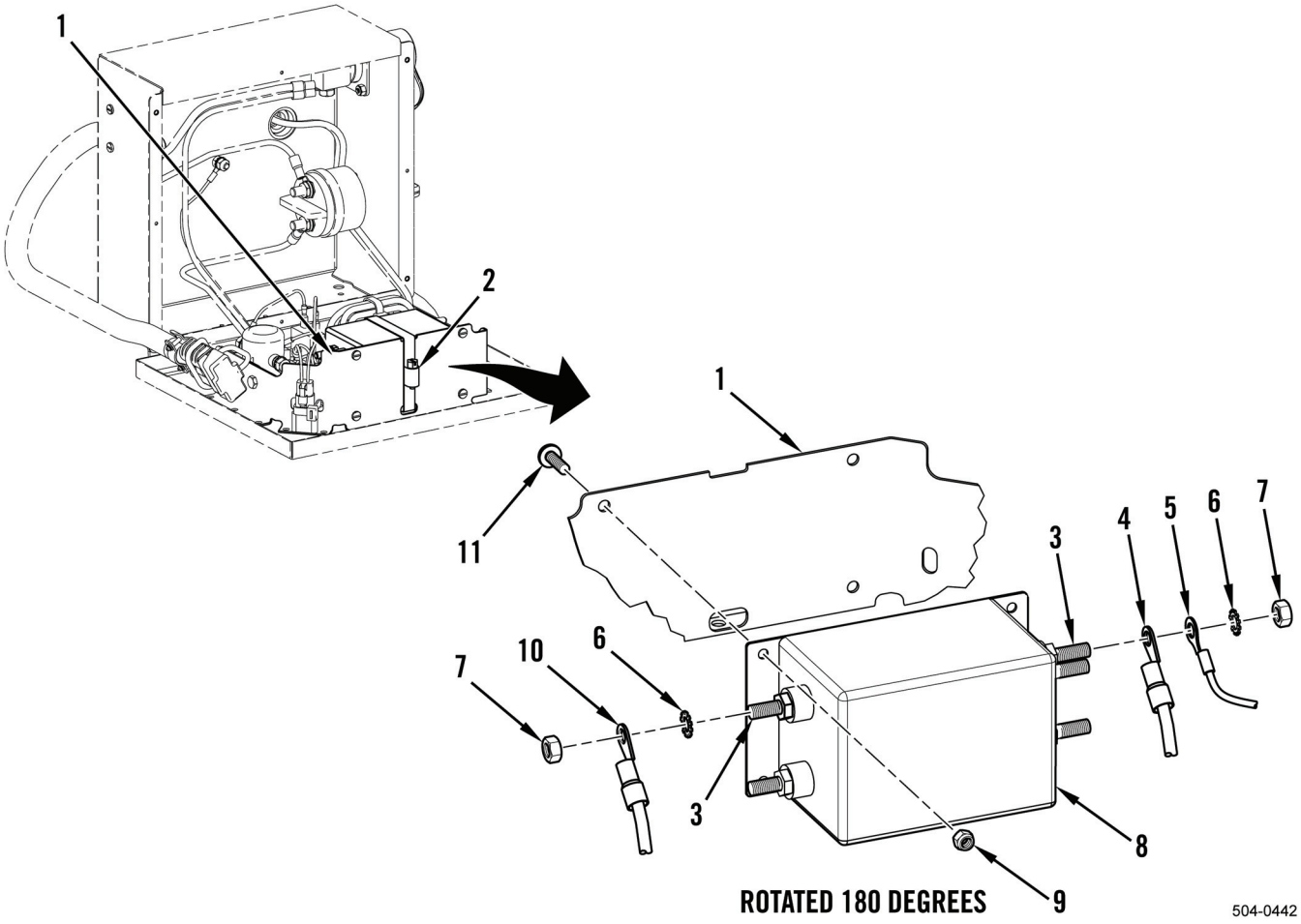


Figure 13. EMI Filter.

END OF TASK

INSTALLATION – CONTINUED

Diode Assembly Installation

1. Install diode assembly (Figure 14, Item 2) on bracket (Figure 14, Item 1) with new cable tie (Figure 14, Item 3).
2. Install two wires (Figure 14, Items 5 and 6) on terminal (Figure 14, Item 4) with new locknut (Figure 14, Item 8) and new lockwasher (Figure 14, Item 7).
3. Install three wires (Figure 14, Items 9 and 13) on control terminals (Figure 14, Item 11) with two new locknuts (Figure 14, Item 12) and two new lockwashers (Figure 14, Item 10).

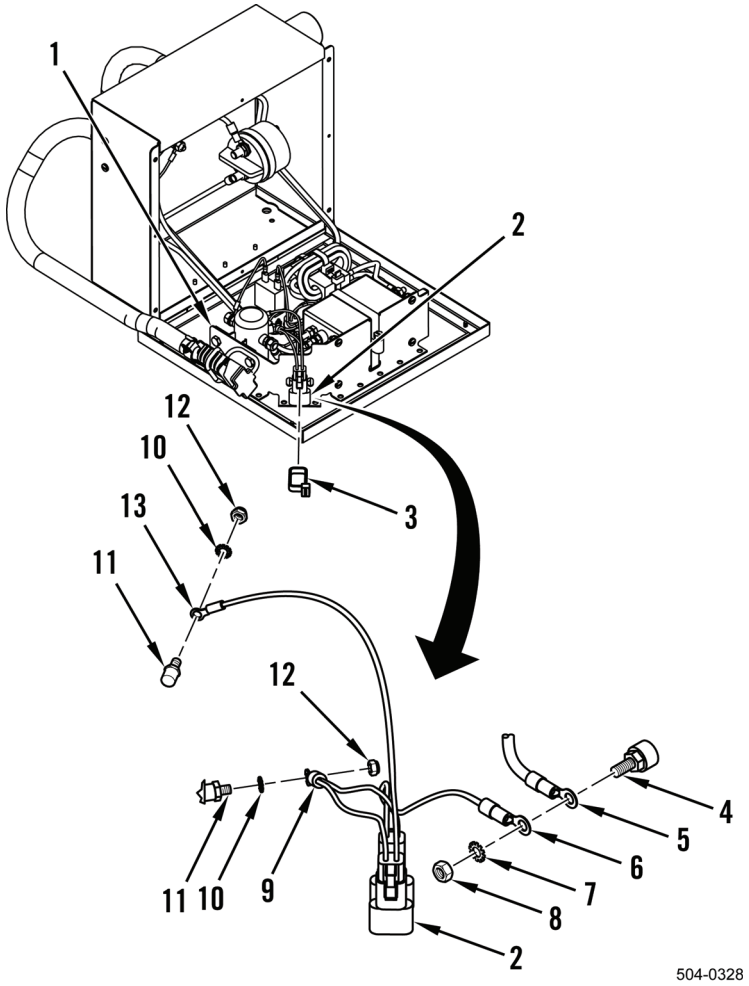


Figure 14. Diode Assembly.

END OF TASK

INSTALLATION – CONTINUED

Toggle Switch Installation

1. Install toggle switch (Figure 15, Item 6) and internal tooth washer (Figure 15, Item 7) on EMI control box cover (Figure 15, Item 9) with nut (Figure 15, Item 8).

NOTE

If performing EMI Control Box Repair WP, wires on toggle switch from receptacle will be installed in Receptacle Installation task.

2. Install four wires (Figure 15, Items 1, 3, 4, and 5) on toggle switch (Figure 15, Item 6) with three screws (Figure 15, Item 2).

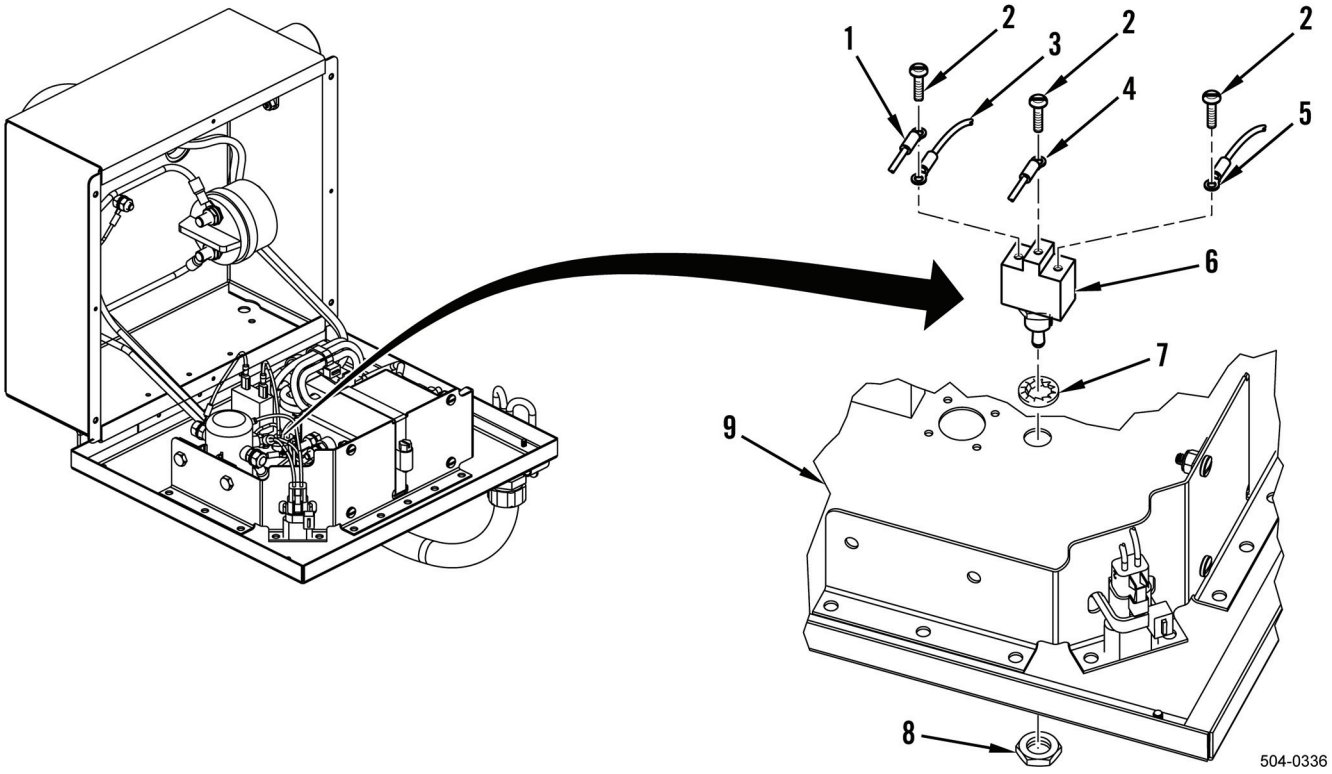


Figure 15. Toggle Switch.

END OF TASK

INSTALLATION – CONTINUED

Relay Installation

1. Install relay (Figure 16, Item 7) on bracket (Figure 16, Item 1) of EMI control box cover (Figure 16, Item 2) with two new locknuts (Figure 16, Item 17), two washers (Figure 16, Item 16), and two bolts (Figure 16, Item 18).
2. Install three wires (Figure 16, Items 12, 13, and 15) on two control terminals (Figure 16, Item 14) with two new locknuts (Figure 16, Item 10) and two new lockwashers (Figure 16, Item 11).
3. Install three wires (Figure 16, Items 5, 8, and 9) on two power terminals (Figure 16, Item 6) with two new locknuts (Figure 16, Item 3) and two new lockwashers (Figure 16, Item 4).

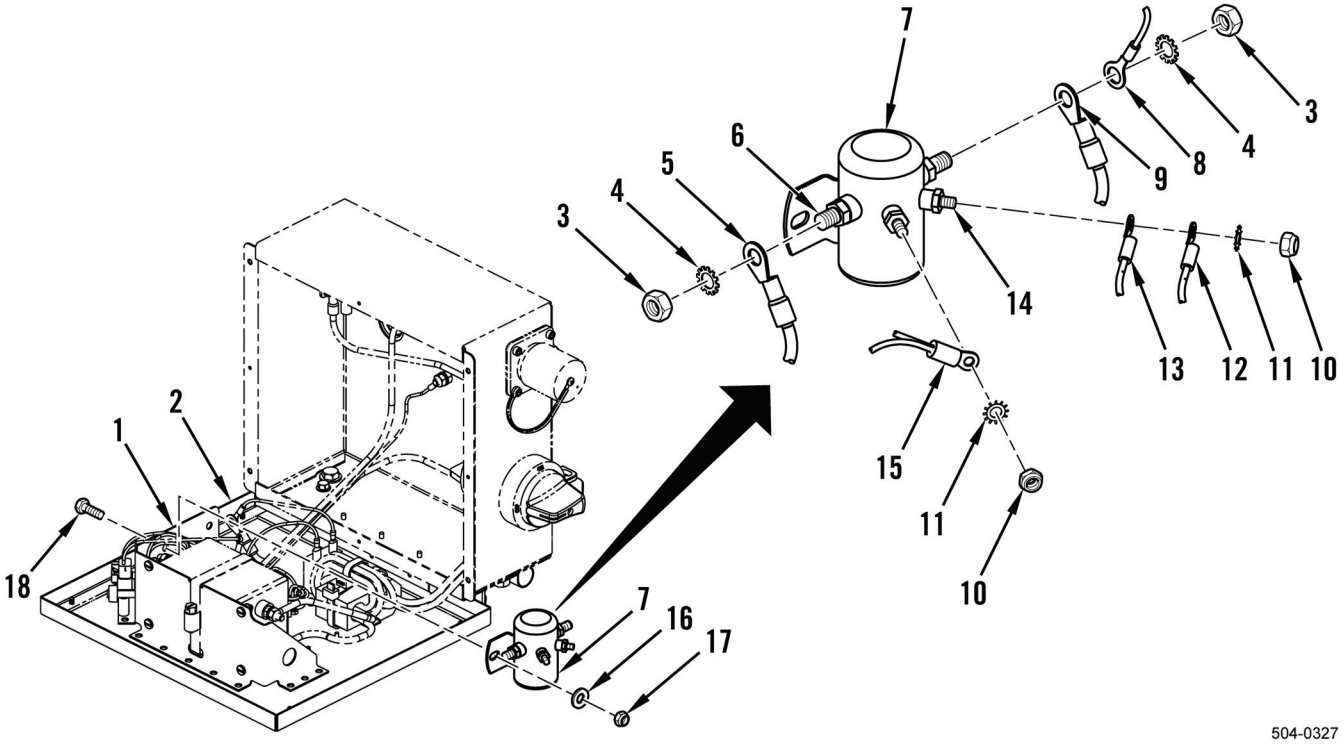


Figure 16. Relay.

END OF TASK

INSTALLATION – CONTINUED

Receptacle Installation

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

1. Apply dielectric grease to end of ground wire (Figure 17, Item 13) and threads of screw (Figure 17, Item 8).
2. Install remote receptacle (Figure 17, Item 10), gasket (Figure 17, Item 11), ground wire (Figure 17, Item 13), wire (Figure 17, Item 9), and cap (Figure 17, Item 7) on EMI control box cover (Figure 17, Item 12) with four new locknuts (Figure 17, Item 1) and four screws (Figure 17, Item 8).

NOTE

Wire (Figure 17, Item 2) is installed in 2A Circuit Breaker Installation task. Make sure wire is in place before installing receptacle wires (Figure 17, Items 4 and 5).

3. Install two screws (Figure 17, Item 3) and two wires (Figure 17, Items 4 and 5) on toggle switch (Figure 17, Item 6).

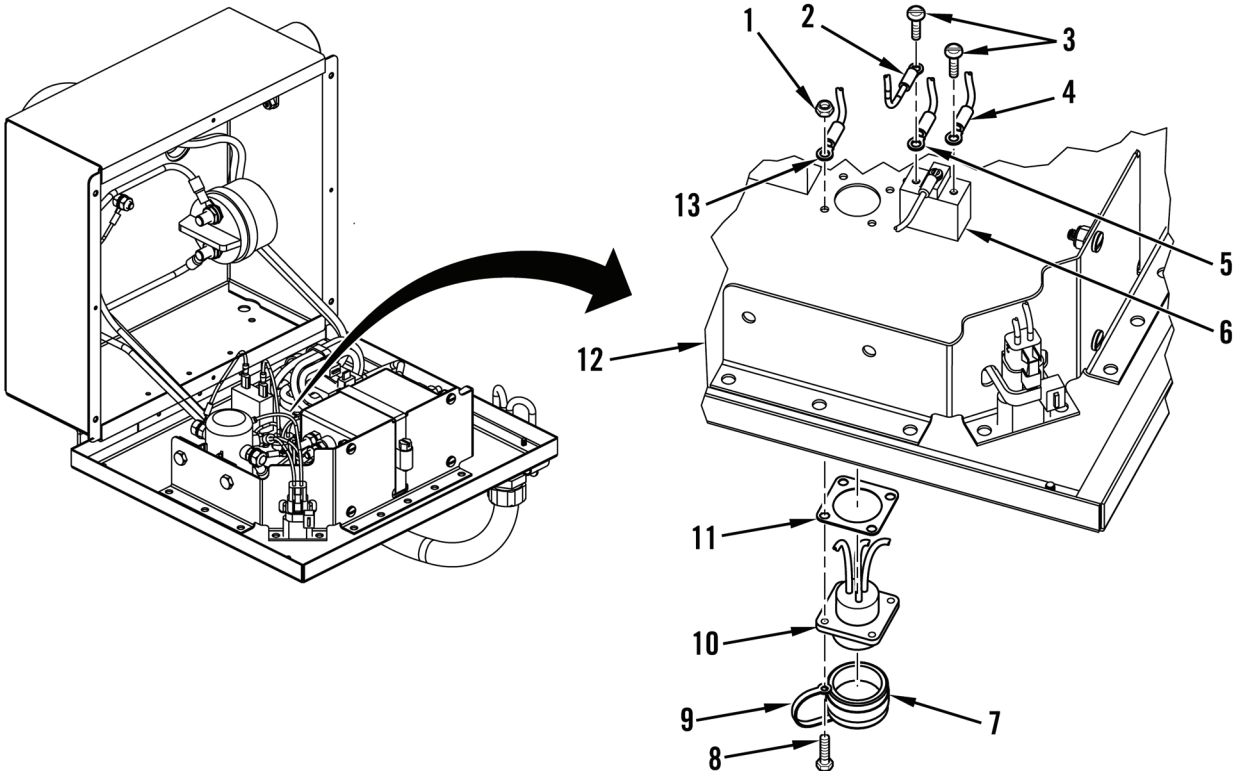


Figure 17. Receptacle.

END OF TASK

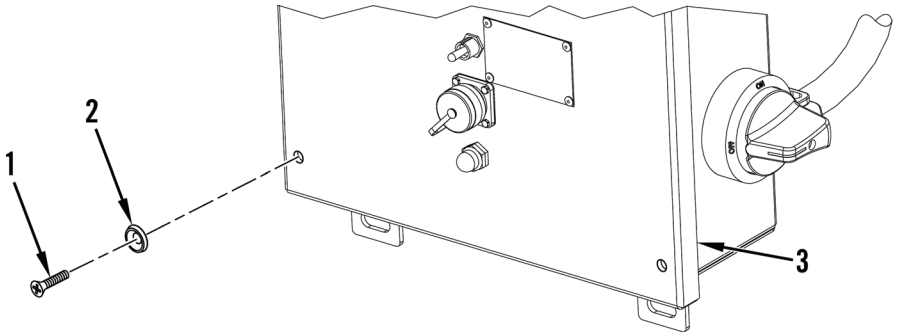
INSTALLATION – CONTINUED

Closing EMI Control Box Cover

WARNING

Corrosion preventive compound is toxic and an irritant to eyes, skin, and respiratory system. Goggles and gloves must be worn when working with corrosion preventive compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury or death to personnel.

1. Apply a thin coat of corrosion preventive compound to threads of four screws (Figure 18, Item 1).
2. Close EMI control box cover (Figure 18, Item 3), and install four screws (Figure 18, Item 1) and washers (Figure 18, Item 2) into EMI control box.
3. Operate TRM (TM 10-4930-370-10) to check for proper operation.



504-0615

Figure 18. EMI Control Box.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

EMI CONTROL BOX WIRING REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Corrosion preventive compound (WP 0181, Item 5)
Grease, electrically conductive (WP 0181, Item 9)
Sealing compound (WP 0181, Item 21)
Locknut (WP 0136, Item 57) Qty: 4
Nut, self-locking, hexagon (WP 0136, Item 3) Qty: 4
Nut, self-locking, hexagon (WP 0136, Item 7) Qty: 6
Nut, self-locking, hexagon (WP 0136, Item 24) Qty: 2
Nut, self-locking, hexagon (WP 0136, Item 69) Qty: 2
Nut, self-locking, hexagon (WP 0136, Item 70) Qty: 2

Materials/Parts—Continued

Nut, self-locking, hexagon (WP 0136, Item 72) Qty: 4
Strap, tiedown (WP 0181, Item 22)
Tie, cable (WP 0136, Item 65) Qty: 2
Washer, lock (WP 0136, Item 25)
Washer, lock (WP 0136, Item 27) Qty: 2
Washer, lock (WP 0136, Item 36) Qty: 2
Washer, lock (WP 0136, Item 39) Qty: 2
Washer, lock (WP 0136, Item 66) Qty: 4
Washer, lock (WP 0136, Item 4) Qty: 7
Wire marker books (WP 0181, Item 23)

References

WP 0068
WP 0136
FO-1

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Ensure all sources of power are disconnected from the TRM before proceeding with maintenance.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

NOTE

Use FO-1 to assist in locating wires during removal and installation of wiring.

REMOVAL

Opening EMI Control Box Cover

1. Remove four screws (Figure 1, Item 1) and washers (Figure 1, Item 3) from EMI control box cover (Figure 1, Item 2).
2. Open EMI control box cover.

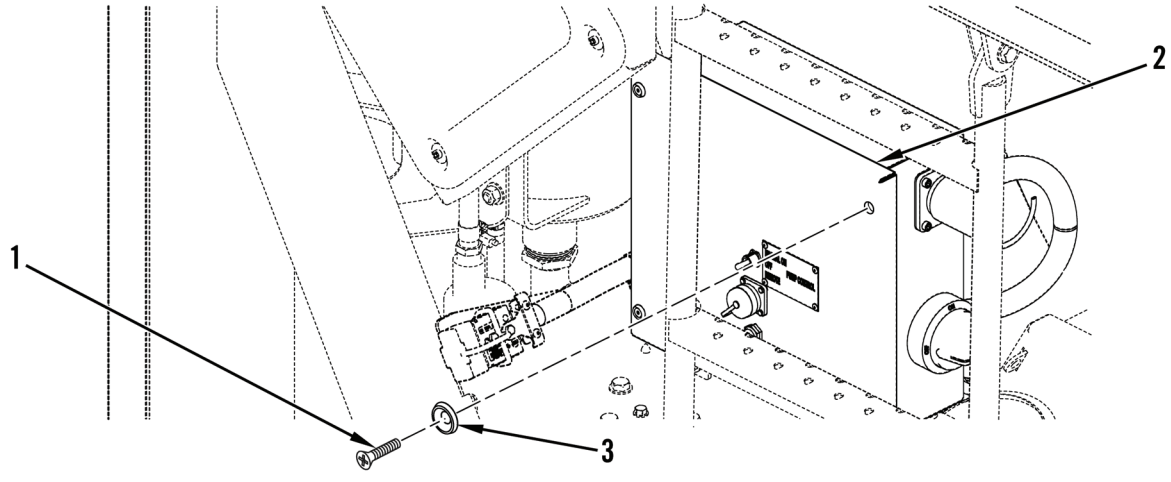


Figure 1. EMI Control Box.

END OF TASK

Motor Cable Assembly Removal

1. Remove ferrites from EMI control box (WP 0068).

NOTE

Tag wires prior to removal to aid in installation.

2. Remove two locknuts (Figure 2, Item 22), lockwashers (Figure 2, Item 24), and wires (Figure 2, Item 23) from two EMI filter terminals (Figure 2, Item 21). Discard locknuts and lockwashers.

CAUTION

Cut sealing compound on conduit box cover before cover removal. Failure to comply may result in damage to equipment.

3. Cut sealing compound on cover (Figure 2, Item 4) and conduit box (Figure 2, Item 2).
4. Remove two screws (Figure 2, Item 3) and cover (Figure 2, Item 4) from conduit box (Figure 2, Item 2) on motor (Figure 2, Item 1).
5. Pull bundle of wires gently from conduit box (Figure 2, Item 2).
6. Remove two cable ties (Figure 2, Item 7) from four wire boots (Figure 2, Items 8 and 13), and slide four wire boots back on wires (Figure 2, Items 9 and 14). Discard cable ties.
7. Remove two bolts (Figure 2, Item 5), four nuts (Figure 2, Item 11), two locknuts (Figure 2, Item 15), and four lockwashers (Figure 2, Item 10) from conduit wires (Figure 2, Item 9), capacitor (Figure 2, Item 12), and motor wires (Figure 2, Item 14). Discard locknuts and lockwashers.

REMOVAL – CONTINUED

Motor Cable Assembly Removal – Continued

8. Remove inner conduit nut (Figure 2, Item 6) from conduit box (Figure 2, Item 2). Feed conduit wires (Figure 2, Item 9) through opening in conduit box (Figure 2, Item 2) and conduit nut (Figure 2, Item 6).

NOTE

P-clamp will remain on electrical cable.

9. Remove bolt (Figure 2, Item 28), two washers (Figure 2, Item 27), locknut (Figure 2, Item 25), and P-clamp (Figure 2, Item 26) from EMI control box (Figure 2, Item 16) and bracket. Discard locknut.
10. Remove nut (Figure 2, Item 20) from conduit (Figure 2, Item 19) fitting.
11. Remove conduit (Figure 2, Item 19) fitting from bushing (Figure 2, Item 18) while feeding wires through bushing and opening (Figure 2, Item 17) at rear of EMI control box (Figure 2, Item 16).

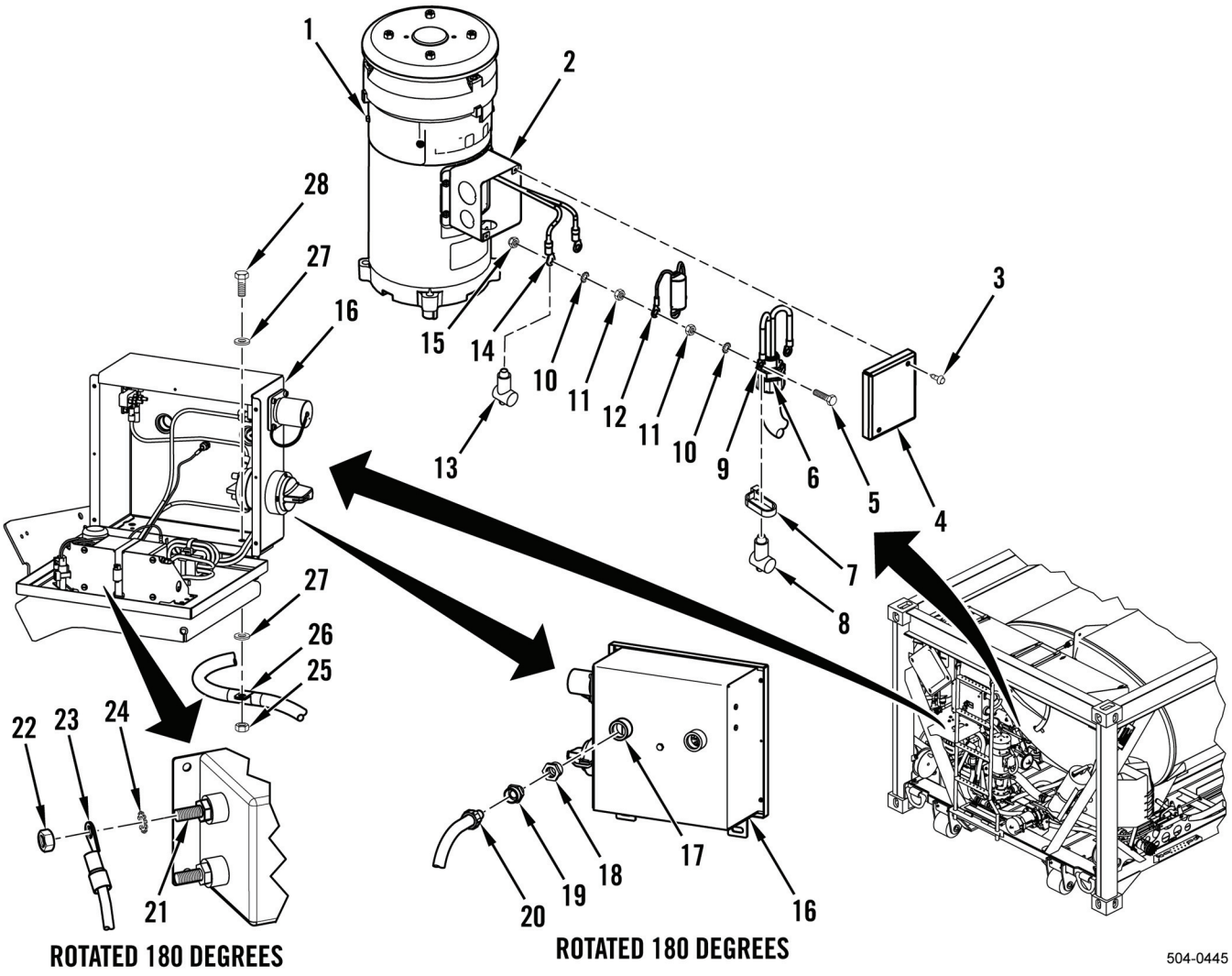


Figure 2. Motor Cable Assembly.

REMOVAL – CONTINUED

Motor Cable Assembly Removal – Continued

12. Remove motor cable assembly.

END OF TASK

Slave Cable Assembly Removal

NOTE

P-clamp will remain on electrical cable.

1. Remove bolt (Figure 3, Item 11), locknut (Figure 3, Item 16), and P-clamp (Figure 3, Item 12) securing 28 VDC power input connector (Figure 3, Item 13) to frame. Discard locknut.

NOTE

The two bolts on 28 VDC power input connector do not need to be removed.

2. Remove four locknuts (Figure 3, Item 15) and two spacers (Figure 3, Item 14) from 28 VDC power input connector (Figure 3, Item 13) and frame. Discard locknuts.

NOTE

Tag wires prior to removal to aid in installation.

3. Remove locknut (Figure 3, Item 20) and two wires (Figure 3, Items 18 and 19) from 50A circuit breaker (Figure 3, Item 17). Discard locknut.
4. Remove bolt (Figure 3, Item 5), flat washer (Figure 3, Item 4), and two wires (Figure 3, Items 2 and 3) from NATO slave connector (Figure 3, Item 1).
5. Remove cable tie (Figure 3, Item 8) from slave cable assembly (Figure 3, Item 10).
6. Pull braided shield (Figure 3, Item 9) away from bushing (Figure 3, Item 7).
7. Remove slave cable assembly and nut (Figure 3, Item 10) from bushing (Figure 3, Item 7).
8. Remove bushing (Figure 3, Item 7) and slave cable assembly and nut (Figure 3, Item 10) from EMI box (Figure 3, Item 6).

REMOVAL – CONTINUED

Slave Cable Assembly Removal – Continued

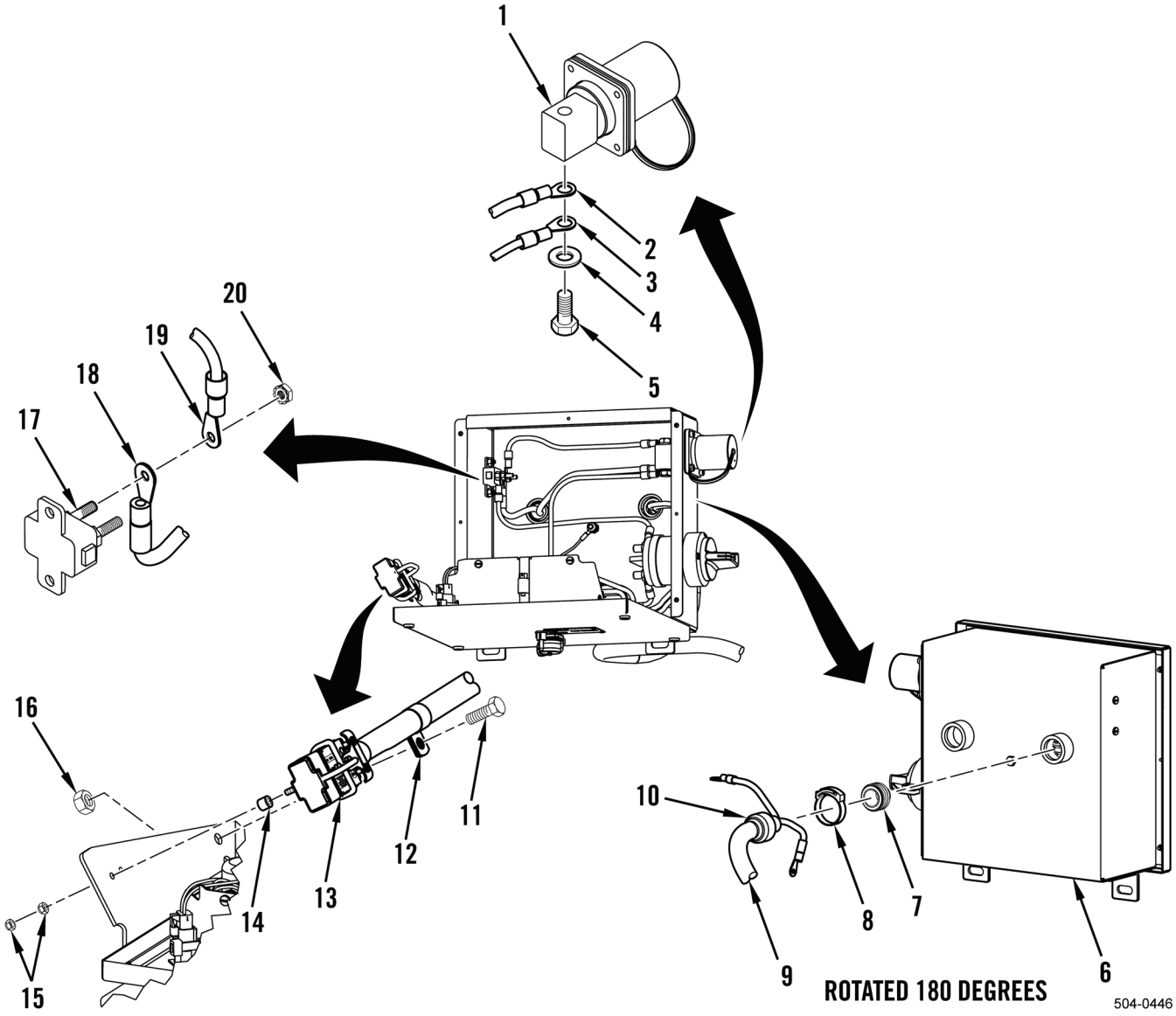


Figure 3. Slave Cable Assembly.

END OF TASK

REMOVAL – CONTINUED

NATO Positive (White) Wire Removal

1. Remove bolt (Figure 4, Item 1), lockwasher (Figure 4, Item 2), and wire (Figure 4, Item 3) from NATO slave connector (Figure 4, Item 4). Discard lockwasher.

NOTE

There are two wires on the 50A circuit breaker terminal.

2. Remove locknut (Figure 4, Item 25) and two wires (Figure 4, Items 23 and 24) from 50A circuit breaker (Figure 4, Item 22). Discard locknut.

END OF TASK

Master Switch (White) Wire Removal

1. Remove locknut (Figure 4, Item 25) and wire (Figure 4, Item 26) from 50A circuit breaker (Figure 4, Item 22). Discard locknut.
2. Remove nut (Figure 4, Item 10), lockwasher (Figure 4, Item 9), and wire (Figure 4, Item 8) from master switch (Figure 4, Item 7). Discard lockwasher.

END OF TASK

NATO Negative (Black) Wire Removal

1. Remove bolt (Figure 4, Item 1), lockwasher (Figure 4, Item 2), and two wires (Figure 4, Items 5 and 6) from NATO slave connector (Figure 4, Item 4). Discard lockwasher.

NOTE

There are two wires on the EMI filter terminal.

2. Remove nut (Figure 4, Item 14), lockwasher (Figure 4, Item 13), and two wires (Figure 4, Items 15 and 16), from EMI filter (Figure 4, Item 11). Discard lockwasher.

END OF TASK

Ground (Green) Wire Removal

1. Remove locknut (Figure 4, Item 14), lockwasher (Figure 4, Item 13), and wire (Figure 4, Item 17) from EMI filter (Figure 4, Item 11). Discard locknut and lockwasher.
2. Remove nut (Figure 4, Item 18), two lockwashers (Figure 4, Item 19), and wire (Figure 4, Item 21) from ground terminal (Figure 4, Item 20). Discard lockwashers.

END OF TASK

REMOVAL – CONTINUED

EMI Filter Positive (Red) Wire Removal

1. Remove nut (Figure 4, Item 14), lockwasher (Figure 4, Item 13), and wire (Figure 4, Item 12) from EMI filter (Figure 4, Item 11). Discard lockwasher.

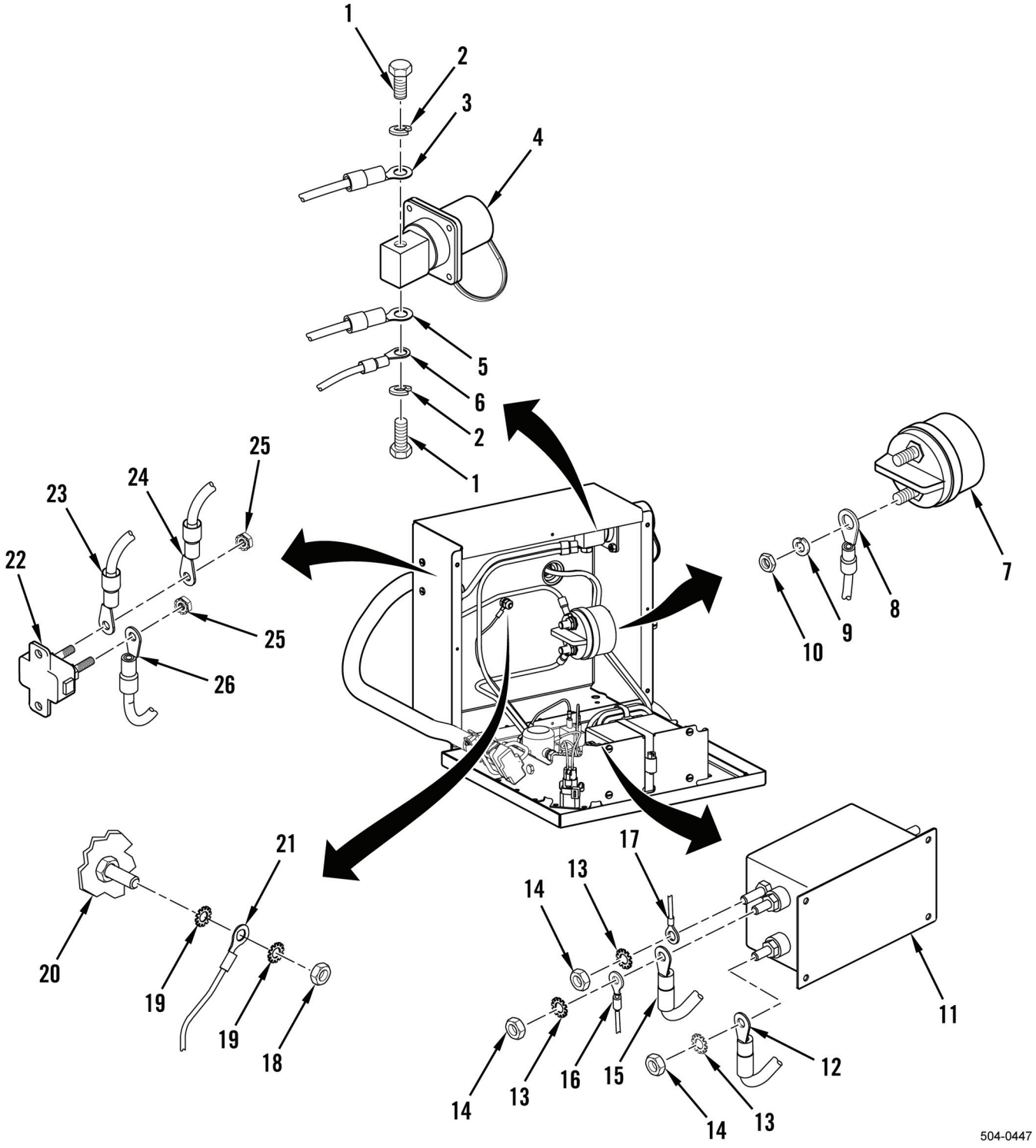


Figure 4. Jumper Wires.

REMOVAL – CONTINUED

EMI Filter Positive (Red) Wire Removal – Continued

2. Remove nut (Figure 5, Item 8), lockwasher (Figure 5, Item 10), and wire (Figure 5, Item 17) from relay (Figure 5, Item 16). Discard lockwasher.

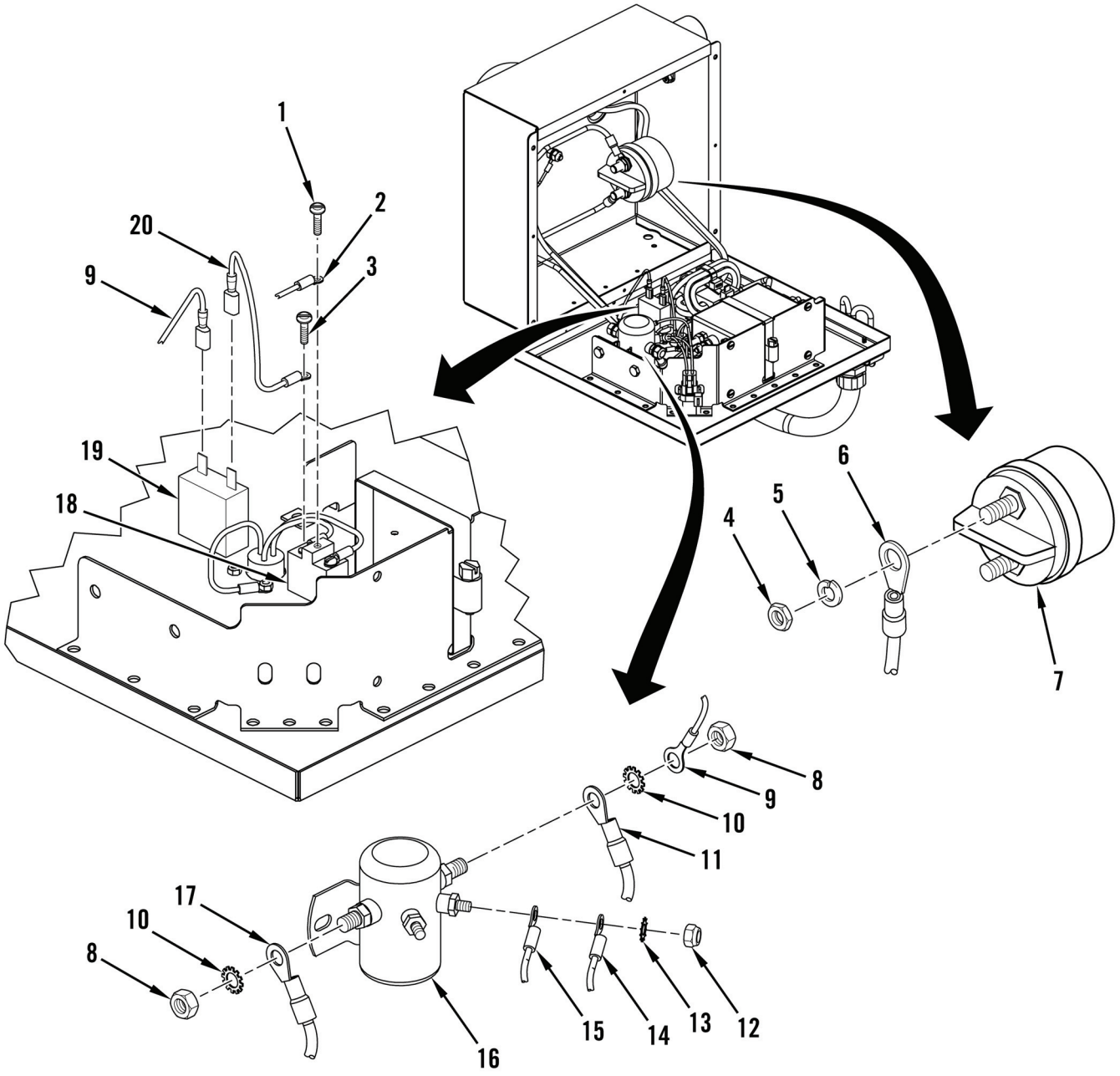


Figure 5. Wiring.

END OF TASK

REMOVAL – CONTINUED

Master Switch (Orange) Wire Removal

1. Remove nut (Figure 5, Item 4), lockwasher (Figure 5, Item 5), and wire (Figure 5, Item 6) from master switch (Figure 5, Item 7). Discard lockwasher.

NOTE

There are two wires on the master switch terminal.

2. Remove nut (Figure 5, Item 8), lockwasher (Figure 5, Item 10), and two wires (Figure 5, Items 9 and 11) from relay (Figure 5, Item 16). Discard lockwasher.

END OF TASK

2A (White) Wire Removal

1. Remove wire (Figure 5, Item 9) from 2A circuit breaker (Figure 5, Item 19).

NOTE

There are two wires on the 2A circuit breaker terminal.

2. Remove nut (Figure 5, Item 8), lockwasher (Figure 5, Item 10), and two wires (Figure 5, Items 9 and 11) from relay (Figure 5, Item 16). Discard lockwasher.

END OF TASK

2A (Brown) Wire Removal

1. Remove wire (Figure 5, Item 20) from 2A circuit breaker (Figure 5, Item 19).

NOTE

The screw on the toggle switch secures two wires.

2. Remove screw (Figure 5, Item 3) and wire (Figure 5, Item 20) from toggle switch (Figure 5, Item 18). Position wire from receptacle to the side.

END OF TASK

Toggle Switch (Red) Wire Removal

1. Remove screw (Figure 5, Item 1) and wire (Figure 5, Item 2) from toggle switch (Figure 5, Item 18).

NOTE

There are two wires on the relay terminal.

2. Remove locknut (Figure 5, Item 12), lockwasher (Figure 5, Item 13), and two wires (Figure 5, Items 14 and 15) from relay (Figure 5, Item 16). Discard lockwasher and locknut.

END OF TASK

INSTALLATION

Toggle Switch (Red) Wire Installation

1. Install two wires (Figure 6, Items 14 and 15), new lockwasher (Figure 6, Item 13), and new locknut (Figure 6, Item 12) onto relay (Figure 6, Item 16).
2. Install wire (Figure 6, Item 2) and screw (Figure 6, Item 1) onto toggle switch (Figure 6, Item 18).

END OF TASK

2A (Brown) Wire Installation

1. Position wire from receptacle and install screw (Figure 6, Item 3) and wire (Figure 6, Item 20) onto toggle switch (Figure 6, Item 18).
2. Install wire (Figure 6, Item 20) onto 2A circuit breaker (Figure 6, Item 19).

END OF TASK

2A (White) Wire Installation

1. Install two wires (Figure 6, Items 9 and 11), new lockwasher (Figure 6, Item 10), and nut (Figure 6, Item 8) onto relay (Figure 6, Item 16).
2. Install wire (Figure 6, Item 9) onto 2A circuit breaker (Figure 6, Item 19).

END OF TASK

Master Switch (Orange) Wire Installation

1. Install wire (Figure 6, Item 6), new lockwasher (Figure 6, Item 5), and nut (Figure 6, Item 4) onto master switch (Figure 6, Item 7).
2. Install two wires (Figure 6, Items 9 and 11), new lockwasher (Figure 6, Item 10), and nut (Figure 6, Item 8) onto relay (Figure 6, Item 16).

END OF TASK

EMI Filter Positive (Red) Wire Installation

1. Install wire (Figure 6, Item 17), new lockwasher (Figure 6, Item 10), and nut (Figure 6, Item 8) onto relay (Figure 6, Item 16).

INSTALLATION – CONTINUED

EMI Filter Positive (Red) Wire Installation – Continued

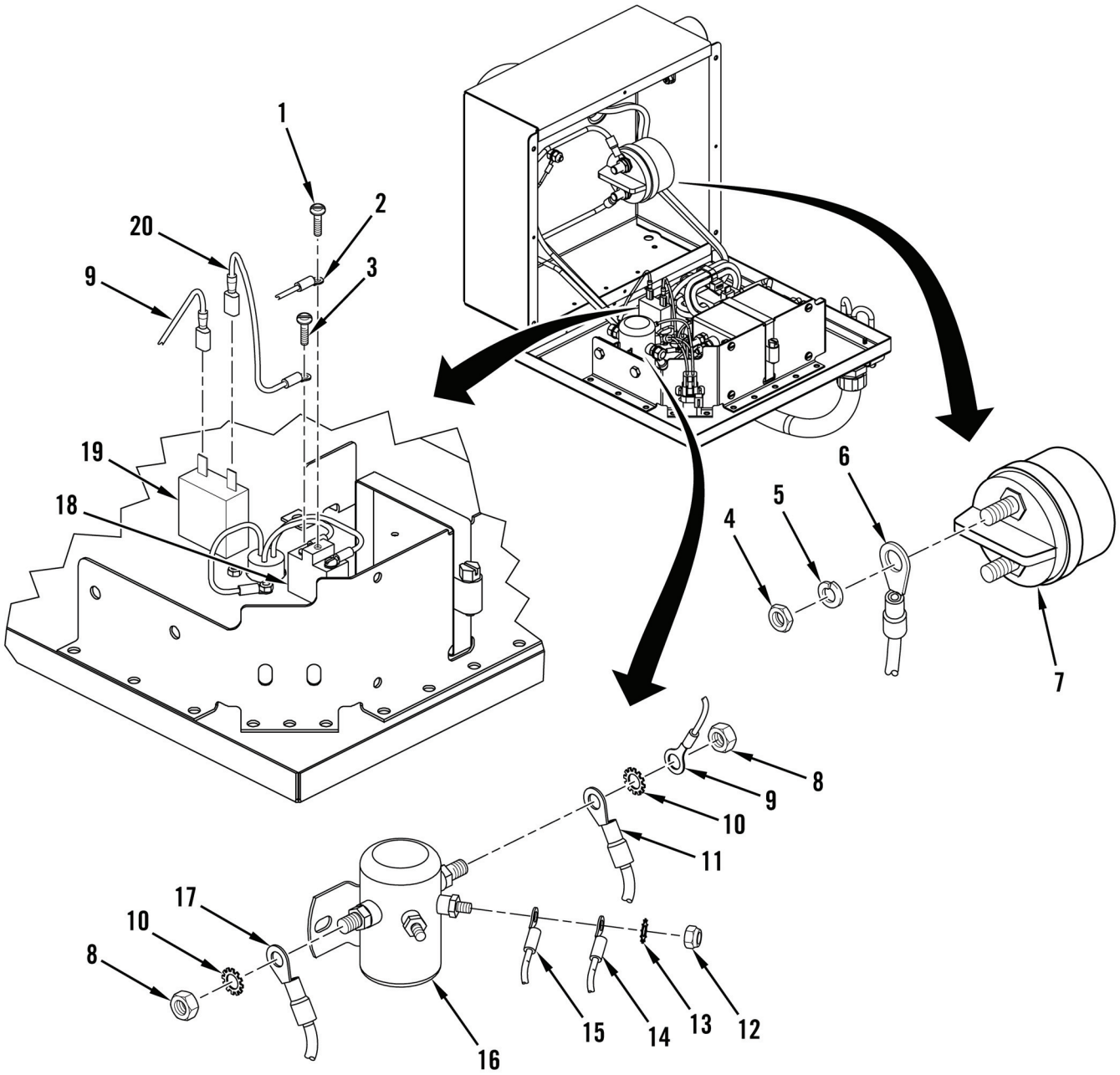


Figure 6. Jumper Wires.

INSTALLATION – CONTINUED

EMI Filter Positive (Red) Wire Installation – Continued

2. Install wire (Figure 7, Item 12), new lockwasher (Figure 7, Item 13), and nut (Figure 7, Item 14) onto EMI filter (Figure 7, Item 11).

END OF TASK

NATO Positive (White) Wire Installation

1. Install two wires (Figure 7, Items 23 and 24) and new locknut (Figure 7, Item 25) onto 50A circuit breaker (Figure 7, Item 22).
2. Install wire (Figure 7, Item 3), new lockwasher (Figure 7, Item 2), and bolt (Figure 7, Item 1) onto NATO slave connector (Figure 7, Item 4).

END OF TASK

Master Switch (White) Wire Installation

1. Install wire (Figure 7, Item 8), new lockwasher (Figure 7, Item 9), and nut (Figure 7, Item 10) onto master switch (Figure 7, Item 7).
2. Install wire (Figure 7, Item 26) and new locknut (Figure 7, Item 25) onto 50A circuit breaker (Figure 7, Item 22).

END OF TASK

NATO Negative (Black) Wire Installation

1. Install two wires (Figure 7, Items 15 and 16), new lockwasher (Figure 7, Item 13), and nut (Figure 7, Item 14) onto EMI filter (Figure 7, Item 11).
2. Install two wires (Figure 7, Items 5 and 6), lockwasher (Figure 7, Item 2), and bolt (Figure 7, Item 1) onto NATO slave connector (Figure 7, Item 4).

END OF TASK

Ground (Green) Wire Installation

WARNING

Goggles and gloves must be worn when working with dielectric grease. Avoid contact with eyes and skin. If dielectric grease contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If dielectric grease contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

1. Apply dielectric grease to end of wire (Figure 7, Item 21) and threads of ground terminal (Figure 7, Item 20).
2. Install wire (Figure 7, Item 21), two new lockwashers (Figure 7, Item 19), and new locknut (Figure 7, Item 18) onto ground terminal (Figure 7, Item 20).
3. Install wire (Figure 7, Item 17), new lockwasher (Figure 7, Item 13), and nut (Figure 7, Item 14) onto EMI filter (Figure 7, Item 11).

INSTALLATION – CONTINUED

Ground (Green) Wire Installation – Continued

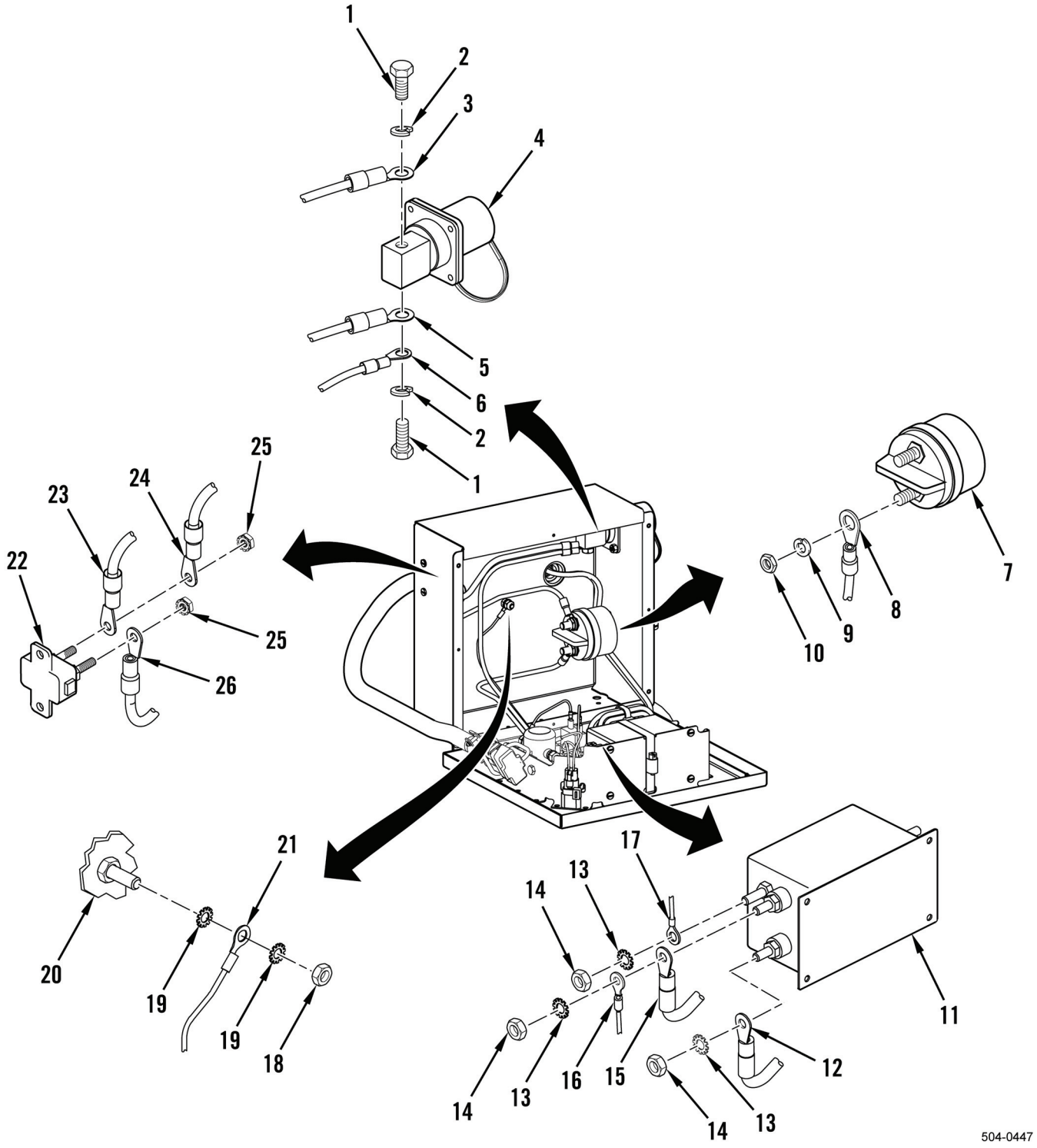


Figure 7. Wiring.

END OF TASK

INSTALLATION – CONTINUED

Slave Cable Assembly Installation

1. Install bushing (Figure 8, Item 2) on EMI box (Figure 8, Item 1).
2. Feed wires into EMI box (Figure 8, Item 1) and position slave cable assembly (Figure 8, Item 4) until cable insulation enters box.
3. Tighten nut of slave cable assembly (Figure 8, Item 5) and position braided shield (Figure 8, Item 4) over bushing (Figure 8, Item 2).
4. Install cable tie (Figure 8, Item 3) on slave cable assembly (Figure 8, Item 5).

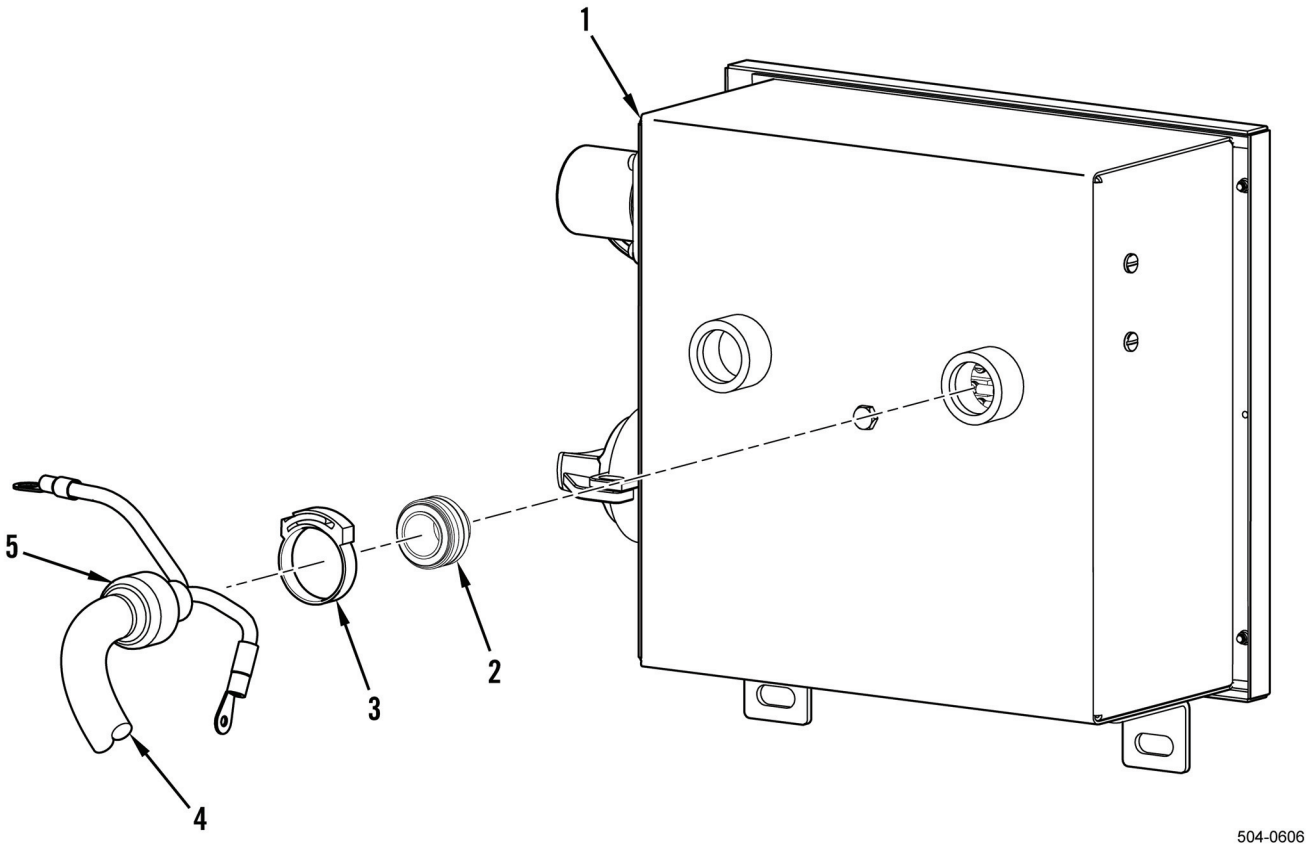


Figure 8. Rear of EMI Control Box.

5. Install bolt (Figure 9, Item 5), flat washer (Figure 9, Item 4), and two wires (Figure 9, Items 2 and 3) on NATO slave connector (Figure 9, Item 1).
6. Install new locknut (Figure 9, Item 15) and two wires (Figure 9, Items 13 and 14) on 50A circuit breaker (Figure 9, Item 12).
7. Install two spacers (Figure 9, Item 9) and four new locknuts (Figure 9, Item 10) on cable connector pigtail (Figure 9, Item 8) and frame.
8. Install bolt (Figure 9, Item 6), new locknut (Figure 9, Item 11), and P-clamp (Figure 9, Item 7) securing 28 VDC power input connector (Figure 9, Item 8) to frame.

INSTALLATION – CONTINUED

Slave Cable Assembly Installation – Continued

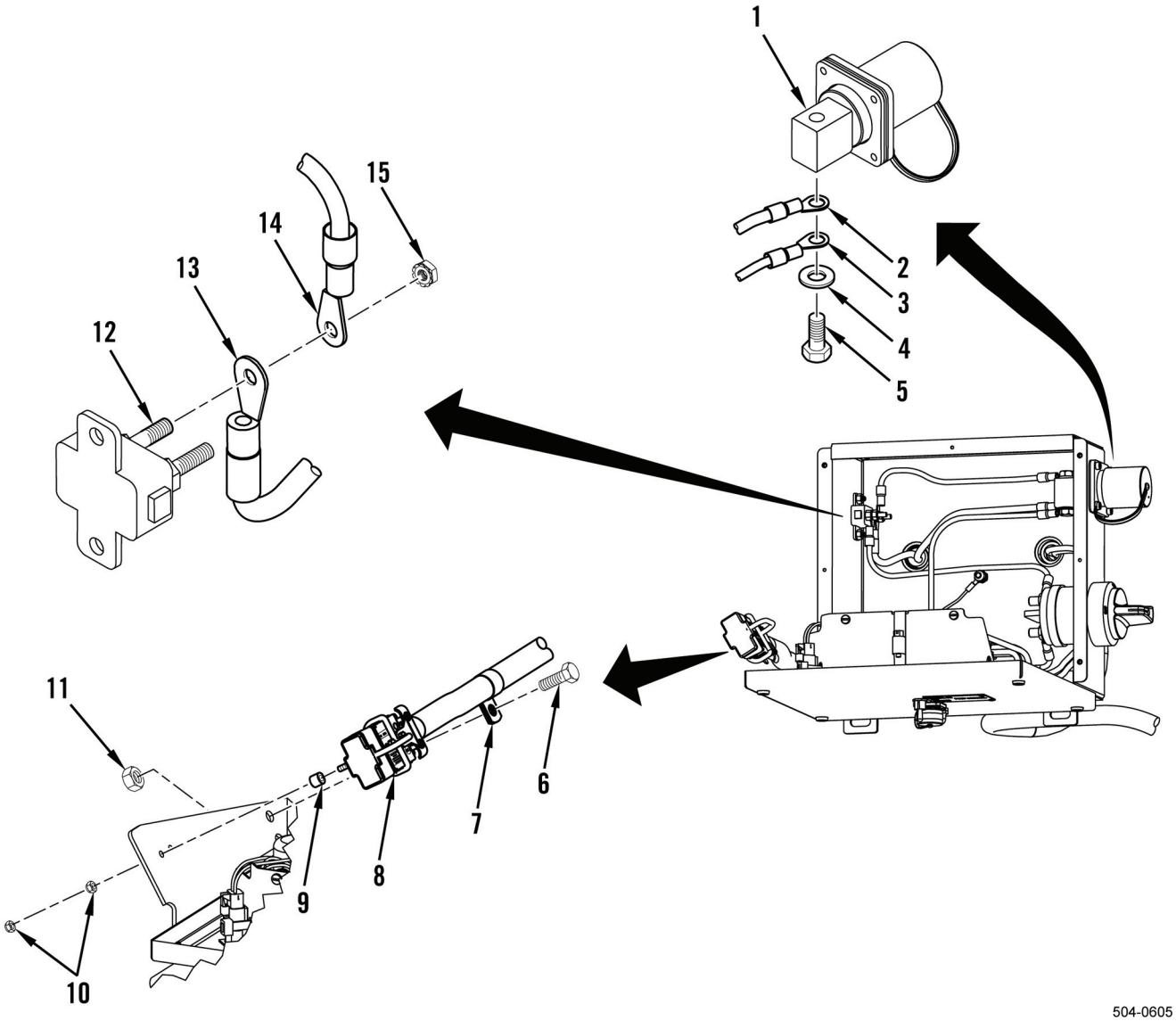


Figure 9. Slave Cable Assembly.

END OF TASK

INSTALLATION – CONTINUED

Motor Cable Assembly Installation

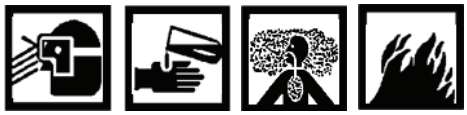
1. Feed wires through bushing (Figure 10, Item 18) and opening (Figure 10, Item 17) at rear of EMI control box (Figure 10, Item 16), and install conduit (Figure 10, Item 19) fitting into bushing.
2. Tighten nut (Figure 10, Item 20) on conduit (Figure 10, Item 19) fitting.
3. Install P-clamp (Figure 10, Item 26) on EMI control box (Figure 10, Item 16) and bracket with bolt (Figure 10, Item 28), two washers (Figure 10, Item 27), and new locknut (Figure 10, Item 25).
4. Feed conduit wires (Figure 10, Item 9) through conduit nut (Figure 10, Item 6) and opening in conduit box (Figure 10, Item 2).
5. Install conduit nut (Figure 10, Item 6) into conduit box (Figure 10, Item 2).
6. Install bolt (Figure 10, Item 5), two nuts (Figure 10, Item 11), new locknut (Figure 10, Item 15), and two new lockwashers (Figure 10, Item 10) on black conduit wire (Figure 10, Item 9), capacitor (Figure 10, Item 12), and black motor wire (Figure 10, Item 14).
7. Install bolt (Figure 10, Item 5), two nuts (Figure 10, Item 11), new locknut (Figure 10, Item 15), and two new lockwashers (Figure 10, Item 10) on red conduit wire (Figure 10, Item 9), capacitor (Figure 10, Item 12), and red motor wire (Figure 10, Item 14).

CAUTION

Ensure each connection point (nut to nut, bolt to nut) is tight before positioning wire boots. Ensure capacitor is oriented correctly. Failure to comply may result in damage to equipment.

8. Position four wire boots (Figure 10, Items 8 and 13) over wires (Figure 10, Items 9 and 14) and secure all four boots with two new cable ties (Figure 10, Item 7).
9. Position bundle of wires (Figure 10, Items 9 and 14) and capacitor (Figure 10, Item 12) gently into conduit box (Figure 10, Item 2).
10. Remove old sealing compound from cover (Figure 10, Item 4) and conduit box (Figure 10, Item 2).
11. Install two screws (Figure 10, Item 3) and cover (Figure 10, Item 4) on conduit box (Figure 10, Item 2) on motor (Figure 10, Item 1).

WARNING



Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

12. Apply sealing compound to top and sides of cover (Figure 10, Item 4).
13. Install two wires (Figure 10, Item 23) on EMI filter terminals (Figure 10, Item 21) with two new locknuts (Figure 10, Item 22) and lockwashers (Figure 10, Item 24).
14. Install ferrites into EMI box (WP 0068).

INSTALLATION – CONTINUED

Motor Cable Assembly Installation – Continued

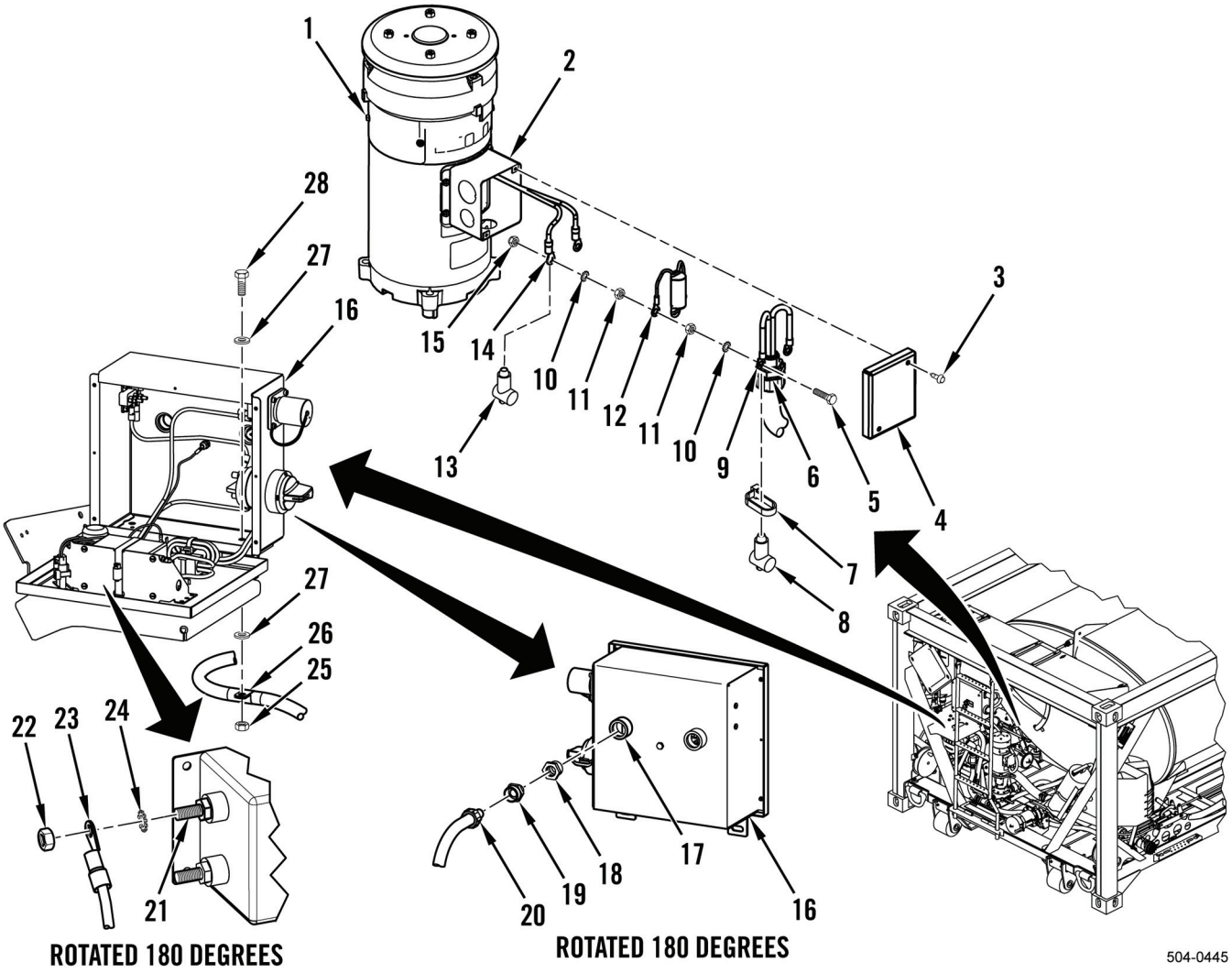


Figure 10. Motor Cable.

END OF TASK

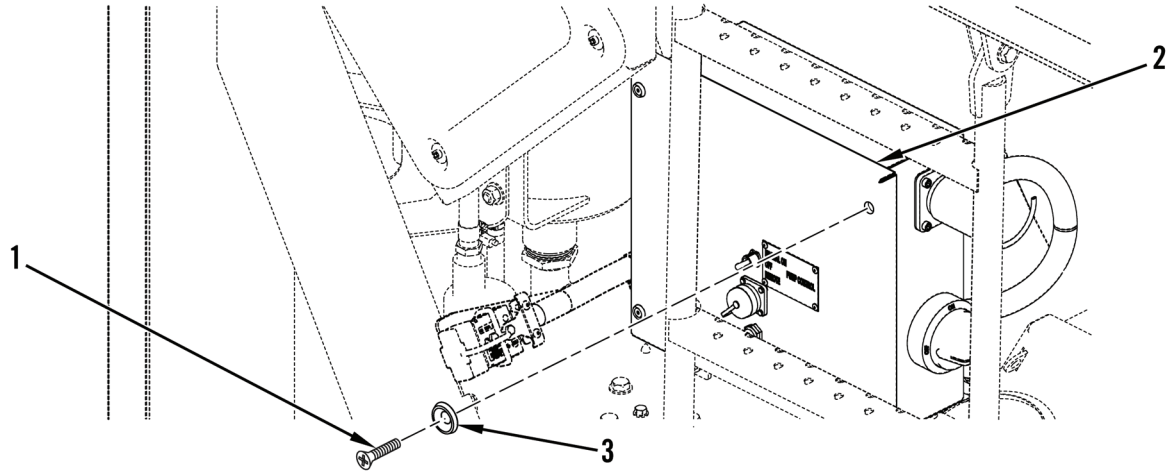
INSTALLATION – CONTINUED

Closing EMI Control Box Cover

WARNING

Corrosion preventive compound is toxic and an irritant to eyes, skin, and respiratory system. Goggles and gloves must be worn when working with corrosion preventive compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury or death to personnel.

1. Apply a thin coat of corrosion preventive compound to threads of four screws (Figure 11, Item 1).
2. Close EMI control box cover (Figure 11, Item 2), and install four screws (Figure 11, Item 1) and washers (Figure 11, Item 3) into EMI control box.
3. Operate TRM (TM 10-4930-370-10) to check for proper operation.



504-0335

Figure 11. EMI Control Box.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CAPACITOR REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Sealing compound (WP 0181, Item 21)
Wire marker books (WP 0181, Item 23)
Nut, self-locking, hexagon (WP 0136, Item 69) Qty: 2
Tie, cable (WP 0136, Item 65) Qty: 2
Washer, lock (WP 0136, Item 66) Qty: 2

References

WP 0059
WP 0136

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Ensure all sources of power are disconnected from the TRM before proceeding with maintenance.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

CAUTION

Cut sealing compound on conduit box cover before cover removal. Failure to comply may result in damage to equipment.

1. Cut sealing compound on cover (Figure 1, Item 4) and conduit box (Figure 1, Item 2).
2. Remove two screws (Figure 1, Item 3) and cover (Figure 1, Item 4) from conduit box (Figure 1, Item 2) on motor (Figure 1, Item 1).
3. Inspect cover gaskets on cover (Figure 1, Item 4) for damage. Replace cover gaskets if damaged (WP 0059).
4. Pull bundle of wires and capacitor (Figure 1, Item 9) gently from conduit box (Figure 1, Item 2).
5. Remove two cable ties (Figure 1, Item 6) from four wire boots (Figure 1, Items 7 and 12), and slide four wire boots back on wires (Figure 1, Items 8 and 13). Discard cable ties.
6. Inspect four wire boots (Figure 1, Items 7 and 12) for damage. Remove and replace wire boots if damaged (WP 0059).

NOTE

Tag wires prior to removal to aid in installation.

7. Remove two locknuts (Figure 1, Item 14), two nuts (Figure 1, Item 10), and two lockwashers (Figure 1, Item 11) from two bolts (Figure 1, Item 5), conduit wires (Figure 1, Item 8), capacitor (Figure 1, Item 9), and motor wires (Figure 1, Item 13). Discard locknuts and lockwashers.

END OF TASK

INSTALLATION

1. Install nut (Figure 1, Item 10), new locknut (Figure 1, Item 14), and new lockwasher (Figure 1, Item 11) onto bolt (Figure 1, Item 5), black conduit wire (Figure 1, Item 8), capacitor (Figure 1, Item 9), and black motor wire (Figure 1, Item 13).
2. Install nut (Figure 1, Item 10), new locknut (Figure 1, Item 14), and new lockwasher (Figure 1, Item 11) onto bolt (Figure 1, Item 5), red conduit wire (Figure 1, Item 8), capacitor (Figure 1, Item 9), and red motor wire (Figure 1, Item 13).

CAUTION

Ensure each connection point (nut to nut, bolt to nut) is tight before positioning wire boots. Ensure capacitor is oriented correctly. Failure to comply may result in damage to equipment.

3. Position four wire boots (Figure 1, Items 7 and 12) over wires (Figure 1, Items 8 and 13) and secure all four boots with two new cable ties (Figure 1, Item 6).
4. Position bundle of wires and capacitor (Figure 1, Item 9) gently into conduit box (Figure 1, Item 2).
5. Remove old sealing compound from cover (Figure 1, Item 4) and conduit box (Figure 1, Item 2).

CAUTION

Slotted opening on cover lip must face down during installation. Failure to comply may result in damage to equipment.

6. Install two screws (Figure 1, Item 3) and cover (Figure 1, Item 4) on conduit box (Figure 1, Item 2) on motor (Figure 1, Item 1).

INSTALLATION – CONTINUED

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

7. Apply sealing compound to top and sides of cover (Figure 1, Item 4). Wipe excess sealing compound from conduit box (Figure 1, Item 2) and cover (Figure 1, Item 4).

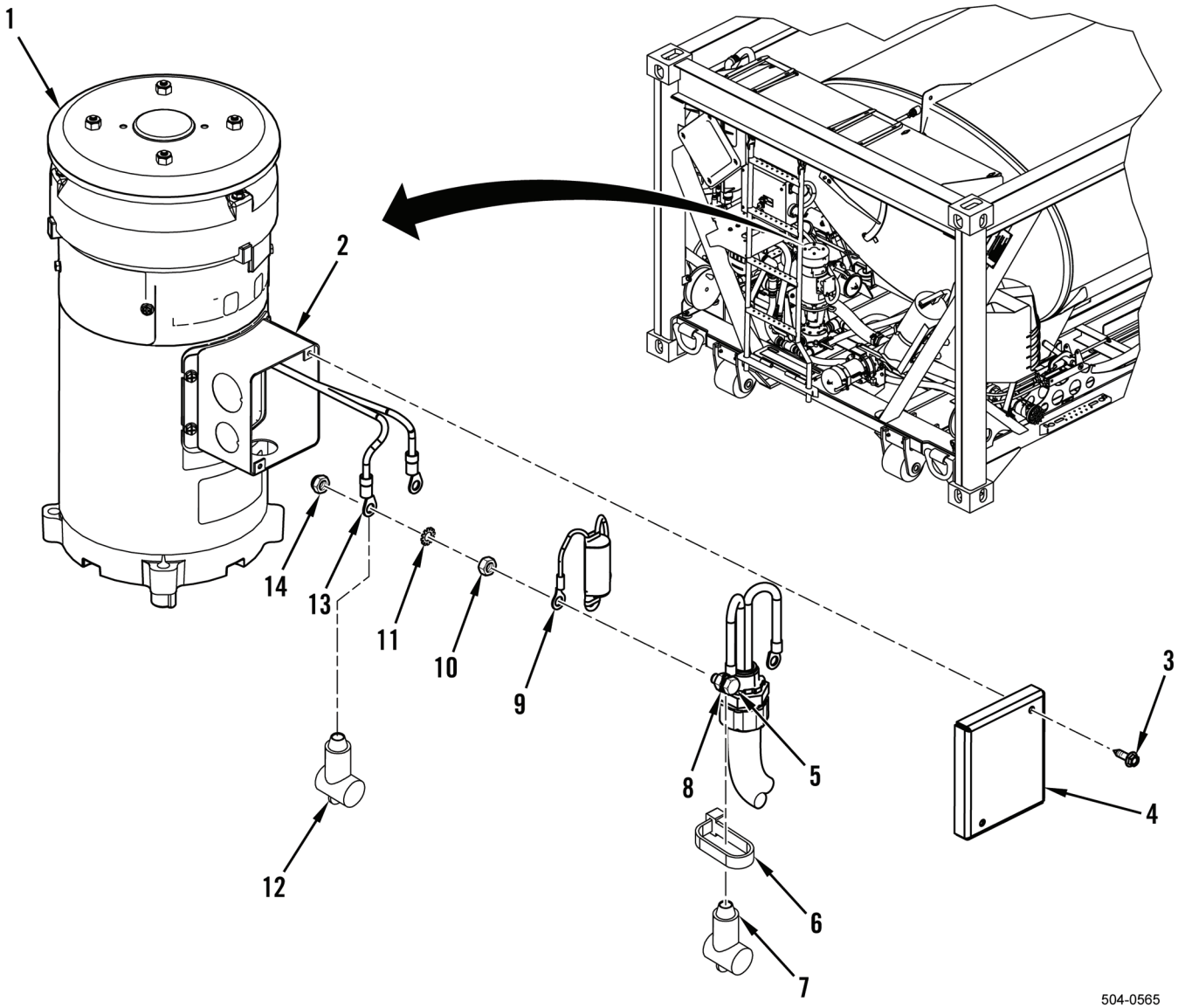


Figure 1. Capacitor.

INSTALLATION – CONTINUED

8. Operate TRM (TM 10-4930-370-10) to check for proper operation.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

ISO RACK PLACARDS REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

Materials/Parts

Nut, self-locking, hexagon (WP 0137, Item 4)
Qty: 12
Nut, self-locking, hexagon (WP 0149, Item 15)
Qty: 2

References

WP 0137
WP 0149

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

NOTE

- There are three ISO rack placards located on TRM frame, each consisting of four bolts, washers and locknuts.
- A fourth ISO rack placard is located on front of tool box, consisting of two bolts, washers, and locknuts, mounted through top and bottom holes in ISO rack placard. To replace this placard, perform Removal step 3 and Installation step 3.

1. Remove four bolts (Figure 1, Item 2), washers (Figure 1, Item 3), and locknuts (Figure 1, Item 5) securing ISO rack placard (Figure 1, Item 1) to ISO rack placard mount (Figure 1, Item 4). Discard locknuts.
2. Remove ISO rack placard (Figure 1, Item 1) from ISO rack placard mount (Figure 1, Item 4).

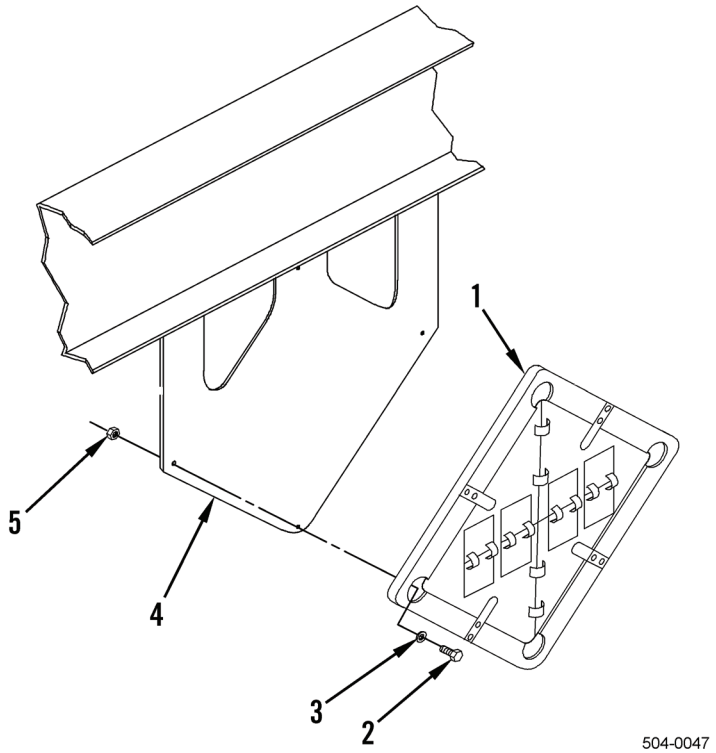


Figure 1. ISO Rack Placards.

3. Remove ISO rack placard from tool box door.
   a. Remove two locknuts (Figure 2, Item 5), washers (Figure 2, Item 3), and bolts (Figure 2, Item 2) securing ISO rack placard (Figure 2, Item 1) to tool box door (Figure 2, Item 4). Discard locknuts.
   b. Remove ISO rack placard (Figure 2, Item 1) from tool box door (Figure 2, Item 4).

REMOVAL – CONTINUED

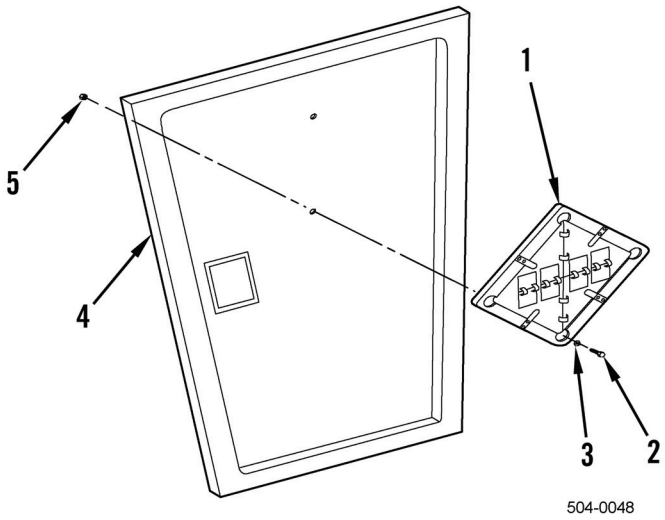


Figure 2. ISO Rack Placards.

END OF TASK

INSTALLATION

1. Position ISO rack placard (Figure 1, Item 1) on ISO rack placard mount (Figure 1, Item 4).
2. Install four bolts (Figure 1, Item 2) washers (Figure 1, Item 3), and new locknuts (Figure 1, Item 5) securing ISO rack placard (Figure 1, Item 1) to ISO rack placard mount (Figure 1, Item 4).
3. Install ISO rack placard on tool box door.
   a. Position ISO rack placard (Figure 2, Item 1) on tool box door (Figure 2, Item 4).
   b. Install two bolts (Figure 2, Item 2), washers (Figure 2, Item 3), and new locknuts (Figure 2, Item 5) securing ISO rack placard (Figure 2, Item 1) to tool box door (Figure 2, Item 4).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

GROUND ROD REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

References

WP 0138

Materials/Parts

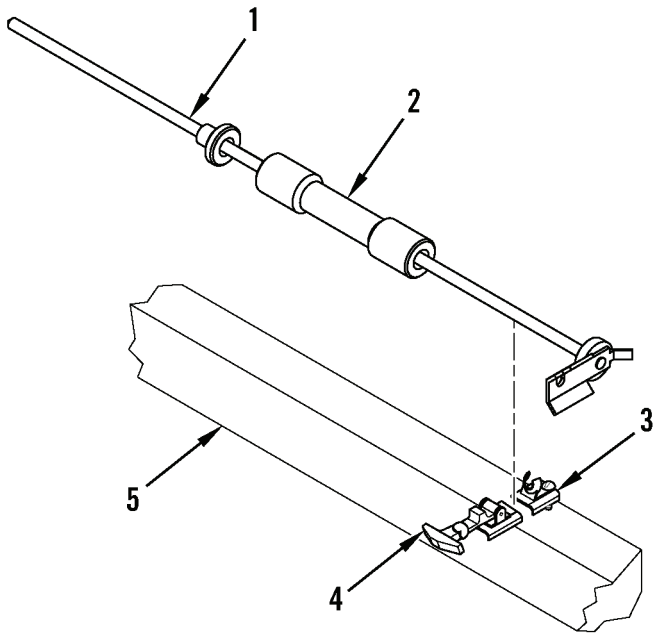
Washer, lock (WP 0138, Item 7) Qty: 8

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

1. Unlatch two clamping catches (Figure 1, Item 4) from clamping catch plates (Figure 1, Item 3).
2. Remove ground rod (Figure 1, Item 1) and slide hammer (Figure 1, Item 2) from TRM frame (Figure 1, Item 5).



504-0602

Figure 1. Ground Rod.

REMOVAL – CONTINUED

3. Remove clamping catch.
   a. Remove two nuts (Figure 2, Item 7), lockwashers (Figure 2, Item 8), and screws (Figure 2, Item 10) securing clamping catch (Figure 2, Item 9) to TRM frame (Figure 2, Item 11). Discard lockwashers.
   b. Remove clamping catch (Figure 2, Item 9) from TRM frame (Figure 2, Item 11).
4. Remove clamping catch plate.
   a. Remove two nuts (Figure 2, Item 6), lockwashers (Figure 2, Item 5), and screws (Figure 2, Item 3) securing clamping catch plate (Figure 2, Item 4) to TRM frame (Figure 2, Item 11). Discard lockwashers.
   b. Remove clamping catch plate (Figure 2, Item 4) from TRM frame (Figure 2, Item 11).

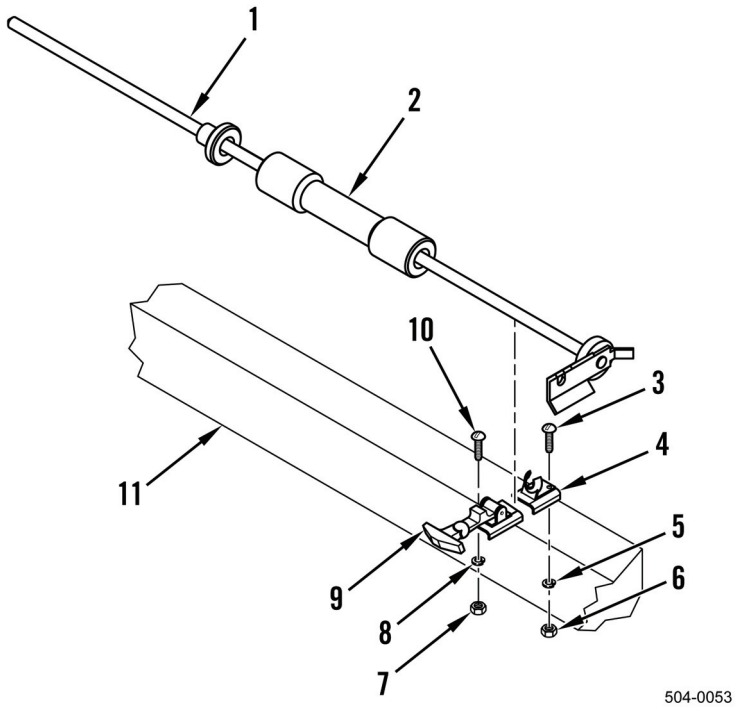


Figure 2. Ground Rod.

END OF TASK

INSTALLATION

1. Install clamping catch plate.
   a. Position clamping catch plate (Figure 2, Item 4) onto TRM frame (Figure 2, Item 11).
   b. Install two screws (Figure 2, Item 3), new lockwashers (Figure 2, Item 5), and nuts (Figure 2, Item 6) securing clamping catch plate (Figure 2, Item 4) to TRM frame (Figure 2, Item 11).
2. Install clamping catch.
   a. Position clamping catch (Figure 2, Item 9) onto TRM frame (Figure 2, Item 11).
   b. Install two screws (Figure 2, Item 10), new lockwashers (Figure 2, Item 8), and nuts (Figure 2, Item 7) securing clamping catch (Figure 2, Item 9) to the TRM frame (Figure 2, Item 11).
3. Position ground rod (Figure 2, Item 1) with slide hammer (Figure 2, Item 2) on TRM frame (Figure 2, Item 11) and secure with clamping catches (Figure 2, Item 9).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TANK GROUND STRAP REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

References

WP 0138

Materials/Parts

Nut, self-locking, hexagon (WP 0138, Item 5) Qty: 2

Washer, lock (WP 0138, Item 3) Qty: 2

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

1. Remove two bolts (Figure 1, Item 1), locknuts (Figure 1, Item 4), and lockwashers (Figure 1, Item 2) from tank. Discard locknuts and lockwashers.
2. Remove ground strap (Figure 1, Item 3) from tank.

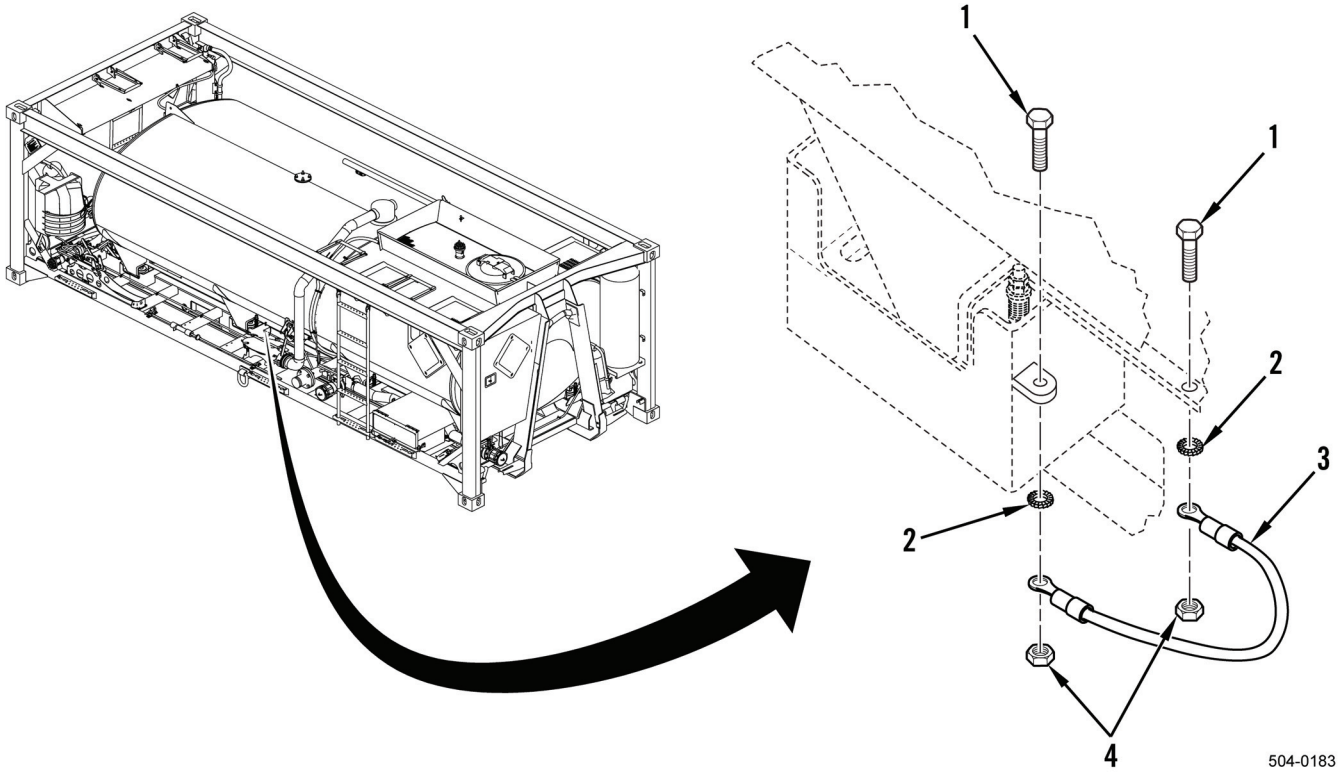


Figure 1. Ground Strap.

END OF TASK

INSTALLATION

1. Position ground strap (Figure 2, Item 3) on tank.
2. Install two bolts (Figure 2, Item 1), new lockwashers (Figure 2, Item 2), and new locknuts (Figure 2, Item 4) on tank.

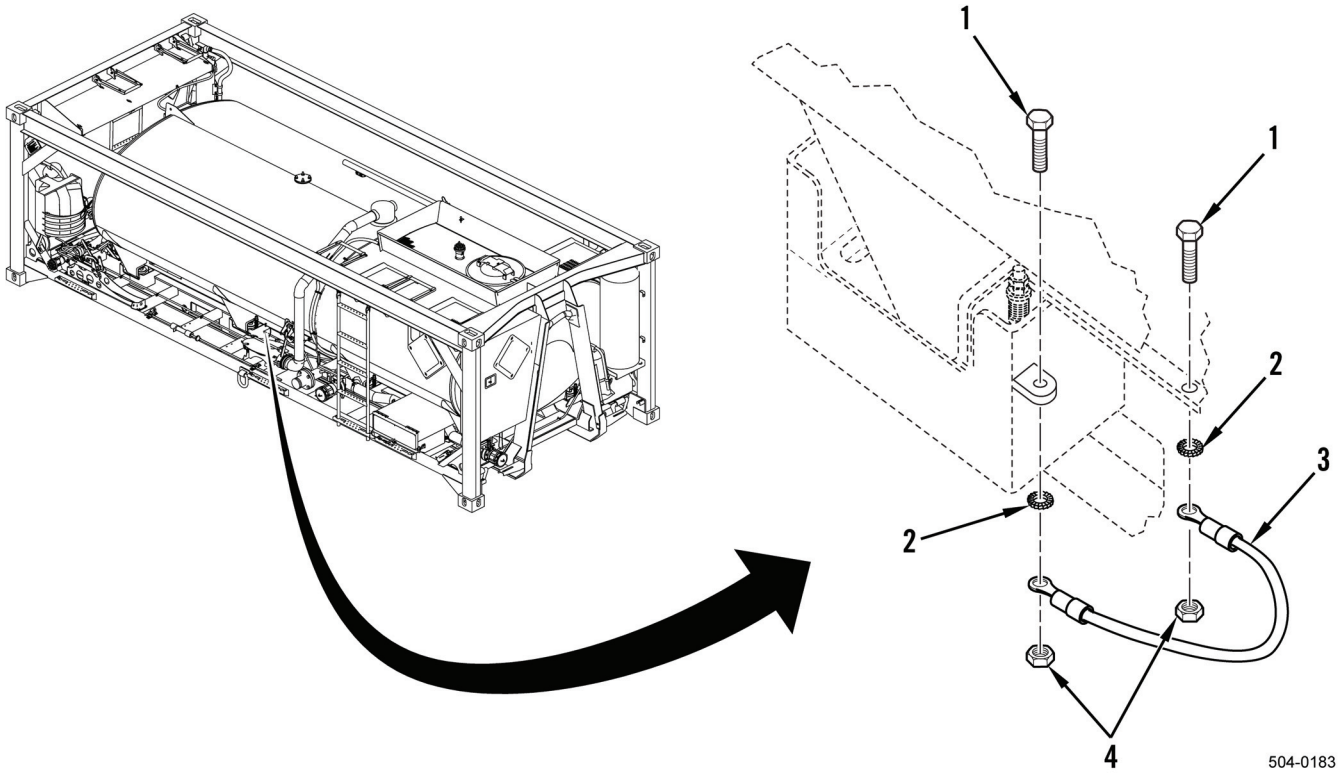


Figure 2. Ground Strap.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FIRE EXTINGUISHER BRACKETS REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

References

WP 0139

Materials/Parts

Nut, self-locking, hexagon (WP 0139, Item 8)
Qty: 4

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Release clamp (Figure 1, Item 1) on fire extinguisher bracket (Figure 1, Item 4).
2. Remove fire extinguisher (Figure 1, Item 6) from fire extinguisher bracket (Figure 1, Item 4).
3. Remove four locknuts (Figure 1, Item 3) and bolts (Figure 1, Item 5) securing fire extinguisher bracket (Figure 1, Item 4) to TRM frame (Figure 1, Item 2). Discard locknuts.
4. Remove fire extinguisher bracket (Figure 1, Item 4) from TRM frame (Figure 1, Item 2).

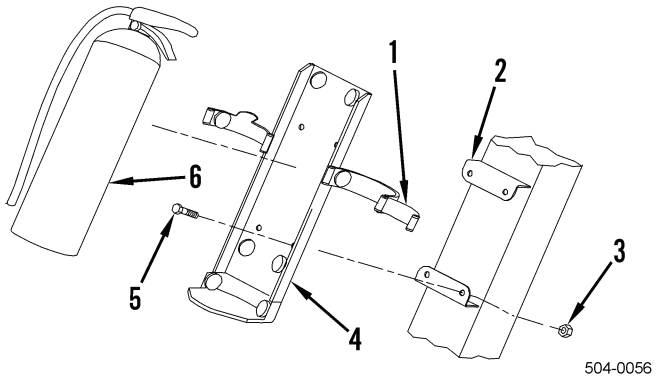


Figure 1. Fire Extinguisher Bracket.

END OF TASK

INSTALLATION

1. Position fire extinguisher bracket (Figure 2, Item 4) on TRM frame (Figure 2, Item 2).
2. Install four bolts (Figure 2, Item 5) and new locknuts (Figure 2, Item 3) on fire extinguisher bracket (Figure 2, Item 4).
3. Tighten locknuts (Figure 2, Item 3) to secure fire extinguisher bracket (Figure 2, Item 4) to TRM frame (Figure 2, Item 2).
4. Install fire extinguisher (Figure 2, Item 6) in fire extinguisher bracket (Figure 2, Item 4).
5. Fasten clamp (Figure 2, Item 1) to secure fire extinguisher (Figure 2, Item 6) in fire extinguisher bracket (Figure 2, Item 4).

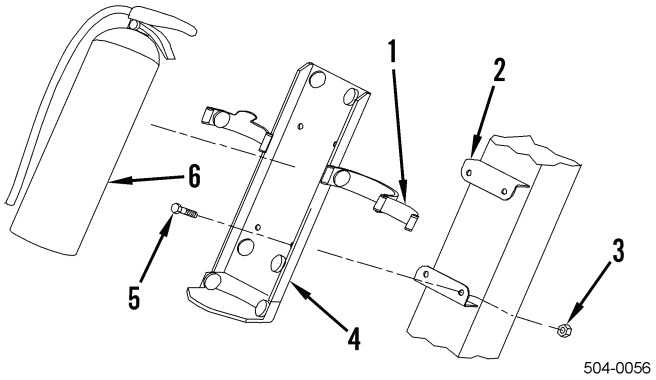


Figure 2. Fire Extinguisher Bracket.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DRIP PAN BRACKET REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

References

WP 0139

Materials/Parts

Nut, self-locking, hexagon (WP 0139, Item 2)
Qty: 2
Nut, self-locking, hexagon (WP 0139, Item 8)
Qty: 3

Equipment Condition

Fire extinguisher bracket removed (WP 0074)

REMOVAL

1. Remove drip pans from drip pan bracket (Figure 1, Item 2).
2. Remove two locknuts (Figure 1, Item 3), two flat washers (Figure 1, Item 4), bolt (Figure 1, Item 5), and drip pan hold down cable (Figure 1, Item 6) from drip pan bracket (Figure 1, Item 2). Discard locknuts.
3. Remove two locknuts (Figure 1, Item 10), four flat washers (Figure 1, Item 8), two bolts (Figure 1, Item 7), and drip pan bracket (Figure 1, Item 2) from bracket (Figure 1, Item 9). Discard locknuts.
4. Remove locknut (Figure 1, Item 10), two flat washers (Figure 1, Item 8), bolt (Figure 1, Item 7), and bracket (Figure 1, Item 9) from TRM frame (Figure 1, Item 1). Discard locknut.

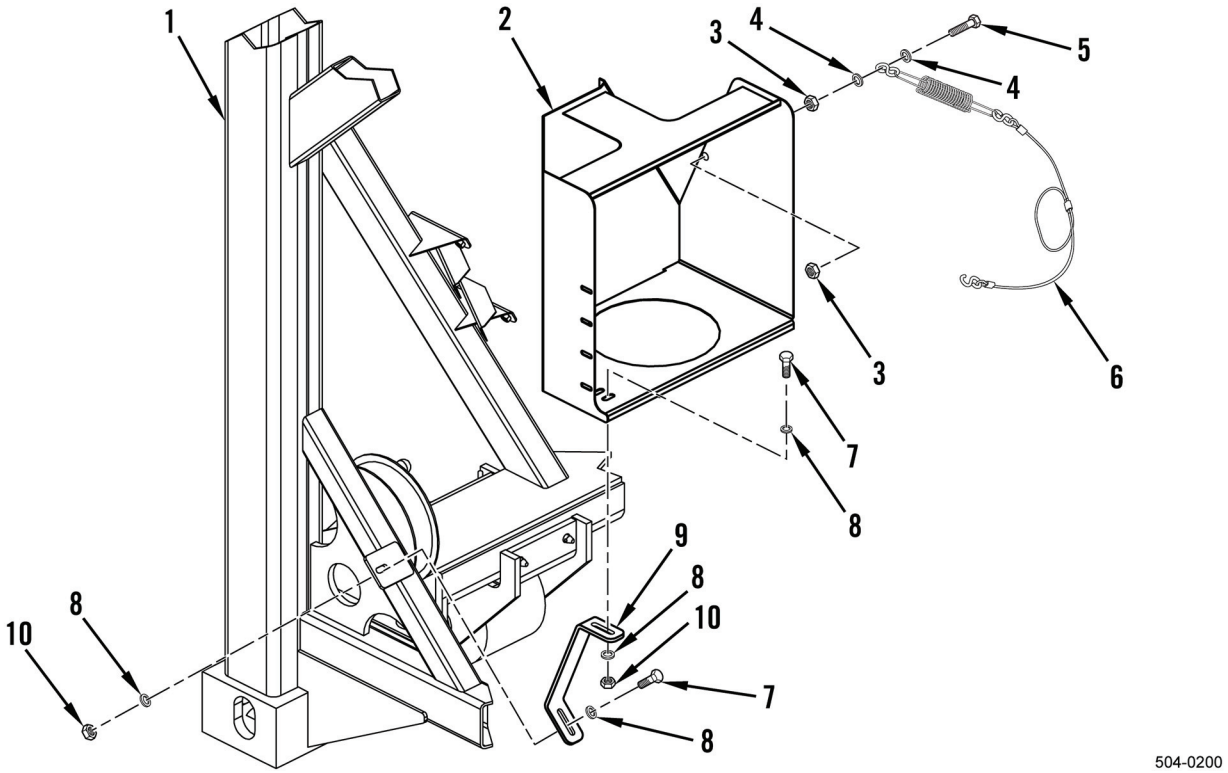


Figure 1. Drip Pan Hold Down Cable.

END OF TASK

INSTALLATION

1. Install bracket (Figure 1, Item 9), two flat washers (Figure 1, Item 8), bolt (Figure 1, Item 7), and new locknut (Figure 1, Item 10) on TRM frame (Figure 1, Item 1).
2. Install drip pan bracket (Figure 1, Item 2) on TRM frame (Figure 1, Item 1) and bracket (Figure 1, Item 9) with four flat washers (Figure 1, Item 8), two bolts (Figure 1, Item 7), and two new locknuts (Figure 1, Item 10).
3. Install bolt (Figure 1, Item 5), drip pan hold down cable (Figure 1, Item 6), two flat washers (Figure 1, Item 4), and two new locknuts (Figure 1, Item 3) to drip pan bracket (Figure 1, Item 2).
4. Install drip pans into drip pan bracket (Figure 1, Item 2).

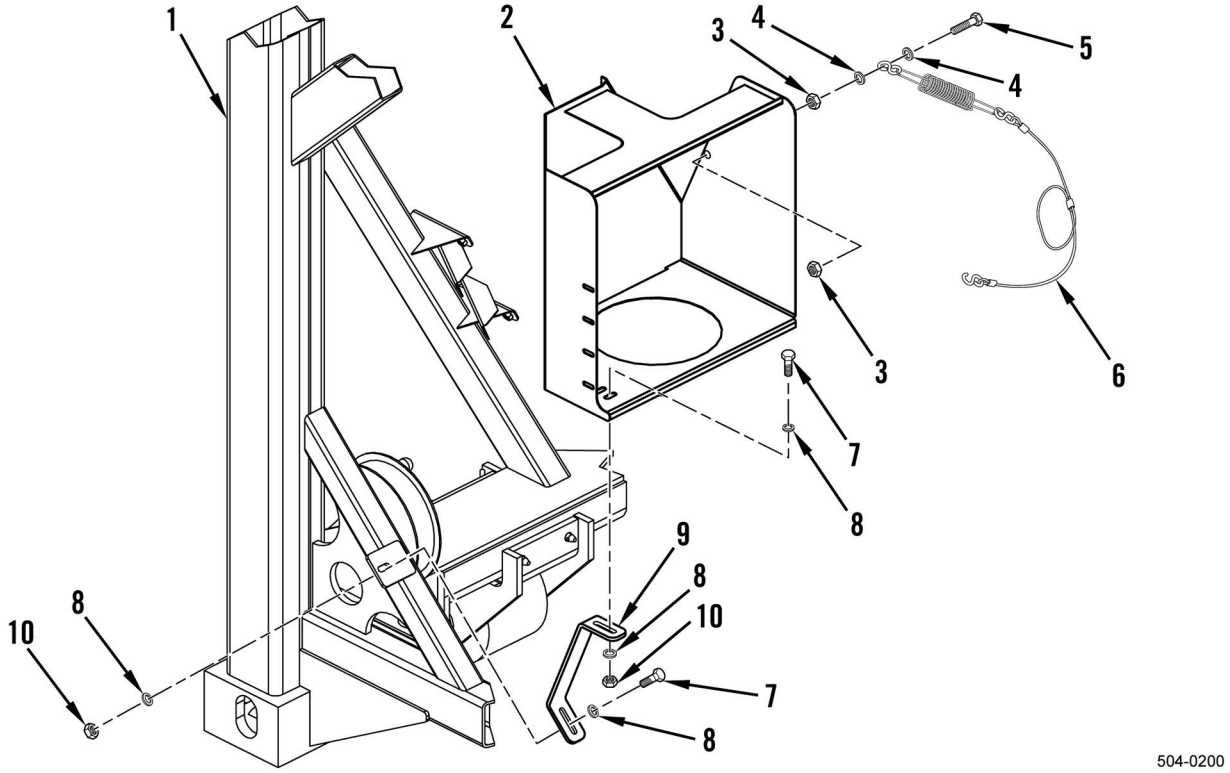


Figure 2. Drip Pan Hold Down Cable.

END OF TASK

FOLLOW-ON MAINTENANCE

Install fire extinguisher bracket (WP 0074).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

STATIC GROUND REELS REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

References

WP 0140

Materials/Parts

Washer, lock (WP 0140, Item 4) Qty: 4

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

NOTE

There are two different static ground reels. Note orientation of brackets during removal and installation.

1. Remove two bolts (Figure 1, Item 2) and lockwashers (Figure 1, Item 3) securing static ground reel (Figure 1, Item 1) to TRM frame (Figure 1, Item 5). Discard lockwashers.
2. Remove ground reel (Figure 1, Item 1) from TRM frame (Figure 1, Item 5).
3. Remove two lockwashers (Figure 1, Item 4) from TRM frame (Figure 1, Item 5). Discard lockwashers.

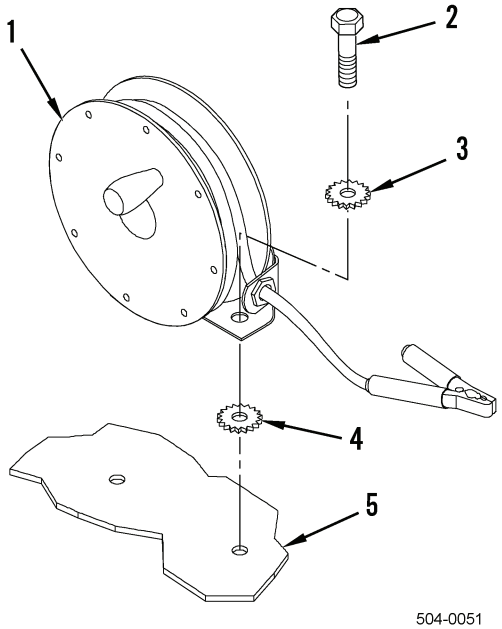


Figure 1. Static Ground Reels.

END OF TASK

INSTALLATION

1. Position two new lockwashers (Figure 2, Item 4) over holes in TRM frame (Figure 2, Item 5).
2. Install ground reel (Figure 2, Item 1) on top of two new lockwashers (Figure 2, Item 4) and TRM frame (Figure 2, Item 5).
3. Install two bolts (Figure 2, Item 2) and new lockwashers (Figure 2, Item 3) to fasten ground reel (Figure 2, Item 1) to TRM frame (Figure 2, Item 5).

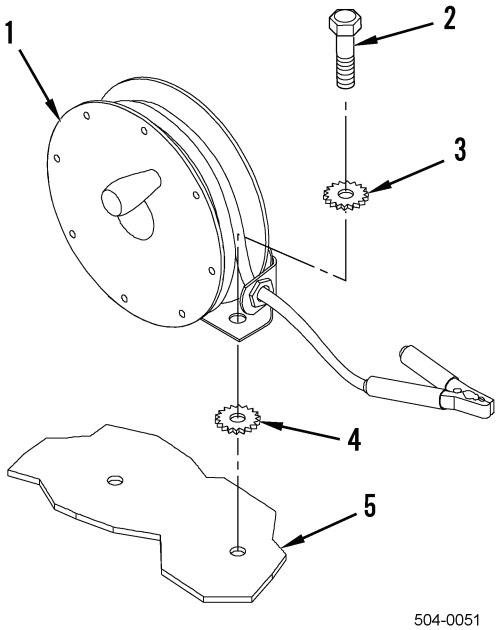


Figure 2. Static Ground Reels.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

ROLLERS REPLACEMENT
Removal, Installation

INITIAL SETUP

Personnel Required
Two

References
WP 0141

Equipment Condition
TRM shut down (TM 10-4930-370-10)
TRM mounted on PLS/LHS (TM 10-4930-370-10)

REMOVALS

NOTE

Rollers have operational and storage positions. See TM 10-4930-370-10.

1. Remove two pin locks (Figure 1, Item 5) securing two pins (Figure 1, Item 2) in roller (Figure 1, Item 4) and TRM (Figure 1, Item 1).
2. Remove two pins (Figure 1, Item 2) with lanyards (Figure 1, Item 3) from roller (Figure 1, Item 4) and TRM (Figure 1, Item 1).
3. Remove roller (Figure 1, Item 4) from TRM frame (Figure 1, Item 1).

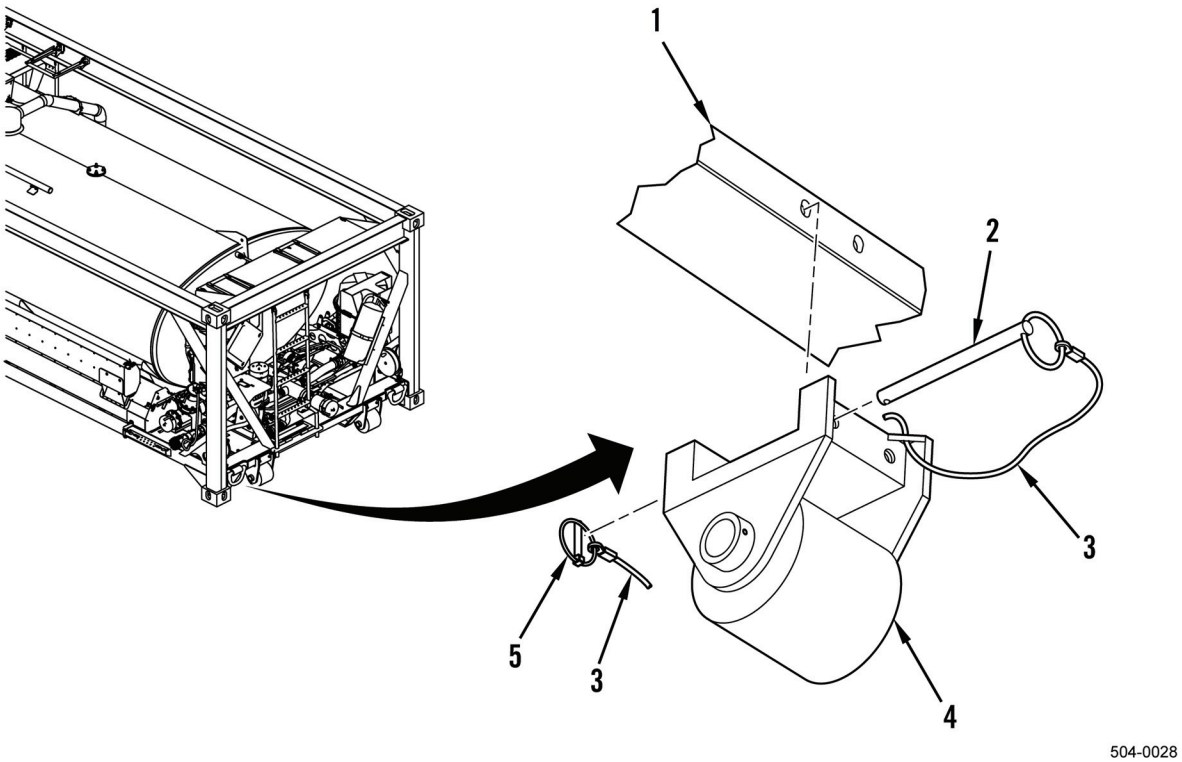


Figure 1. Roller.

END OF TASK

INSTALLATION

1. Position roller (Figure 2, Item 4) on TRM frame (Figure 2, Item 1).
2. Install two pins (Figure 2, Item 2) through holes in roller (Figure 2, Item 4) and TRM (Figure 2, Item 1).
3. Route two lanyards (Figure 2, Item 3) over TRM frame (Figure 2, Item 1).
4. Install two pin locks (Figure 2, Item 5) securing two pins (Figure 2, Item 2) in roller (Figure 2, Item 4) and TRM (Figure 2, Item 1).

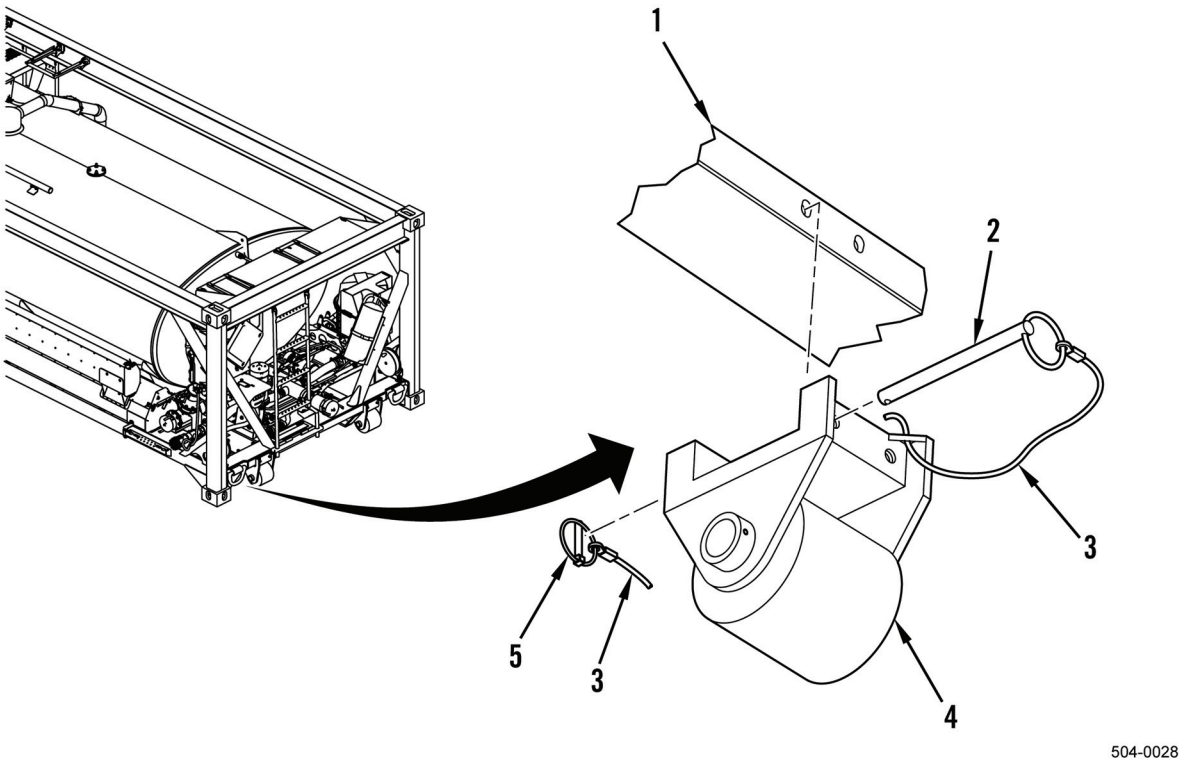


Figure 2. Roller.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

ISO RACK HANDLES REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

Materials/Parts

Nut, self-locking, hexagon (WP 0142, Item 2)
Qty: 8
Nut, self-locking, hexagon (WP 0142, Item 9)
Qty: 4
Nut, self-locking, hexagon (WP 0142, Item 15)
Qty: 2

References

WP 0142

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

Rear Handles

WARNING

Handle is under spring tension. Use care during removal. Failure to follow this warning may result in injury to personnel.

1. Remove two locknuts (Figure 1, Item 1), washers (Figure 1, Item 2), and spring (Figure 1, Item 11) from ISO rack handle (Figure 1, Item 3). Discard locknuts.
2. Remove two locknuts (Figure 1, Item 9), washers (Figure 1, Item 10), spring (Figure 1, Item 11), and bolt (Figure 1, Item 8) securing spring to TRM frame (Figure 1, Item 7). Discard locknuts.
3. Remove two locknuts (Figure 1, Item 4), four washers (Figure 1, Items 5), and two bolts (Figure 1, Item 6) securing ISO rack handle (Figure 1, Item 3) to TRM frame (Figure 1, Item 7). Discard locknuts.
4. Remove ISO rack handle (Figure 1, Item 3) from TRM frame (Figure 1, Item 7).

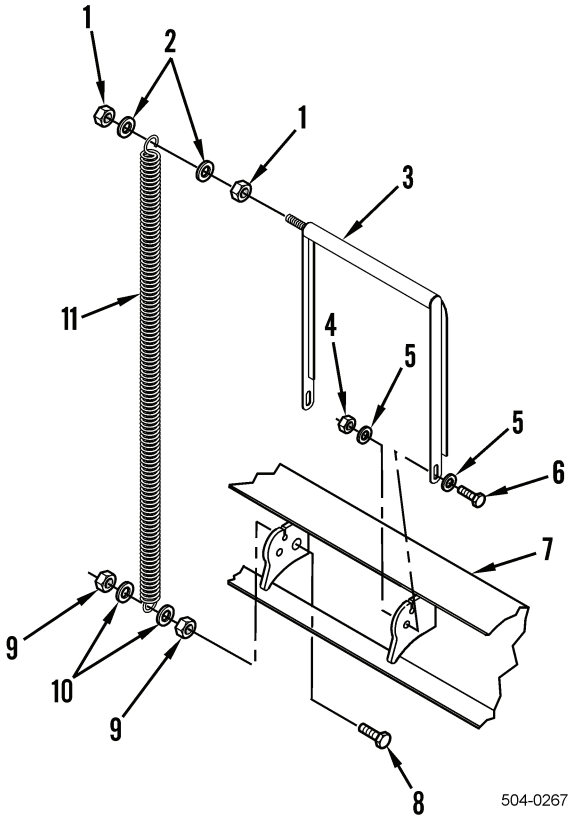


Figure 1. Rear ISO Rack Handles.

END OF TASK

REMOVAL – CONTINUED

Side Handles

WARNING

Handle is under spring tension. Use care during removal. Failure to follow this warning may result in injury to personnel.

1. Remove two locknuts (Figure 2, Item 1), washers (Figure 2, Item 2), and spring (Figure 2, Item 14) from ISO rack handle (Figure 2, Item 3). Discard locknuts.
2. Remove two locknuts (Figure 2, Item 12), washers (Figure 2, Item 13), and spring (Figure 2, Item 14) from plate (Figure 2, Item 10) on TRM frame (Figure 2, Item 7). Discard locknuts.
3. Note position and orientation of spring plates for installation.
4. Remove two locknuts (Figure 2, Item 4), four washers (Figure 2, Items 5), and two bolts (Figure 2, Item 6) securing ISO rack handle (Figure 2, Item 3) to TRM frame (Figure 2, Item 7). Discard locknuts.
5. Remove ISO rack handle (Figure 2, Item 3) from frame (Figure 2, Item 7).
6. Remove two locknuts (Figure 2, Item 11), two plates (Figure 2, Items 9 and 10), and two bolts (Figure 2, Item 8) from TRM frame (Figure 2, Item 7). Discard locknuts.

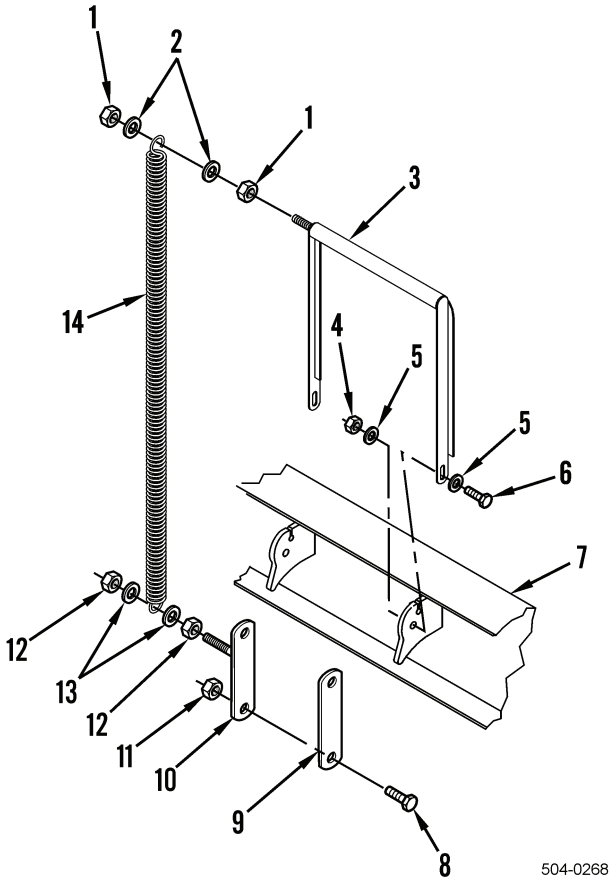


Figure 2. Side ISO Rack Handles.

END OF TASK

INSTALLATION

Rear Handles

1. Position ISO rack handle (Figure 3, Item 3) to TRM frame (Figure 3, Item 7).
2. Install two bolts (Figure 3, Item 6), four washers (Figure 3, Item 5), and two new locknuts (Figure 3, Item 4) through ISO rack handle (Figure 3, Item 3) and TRM frame (Figure 3, Item 7).
3. Tighten locknut (Figure 3, Item 4) and back off one half turn.
4. Install bolt (Figure 3, Item 8) through TRM frame (Figure 3, Item 7) and secure with new locknut (Figure 3, Item 9). Tighten locknut.
5. Install two washers (Figure 3, Item 10), spring (Figure 3, Item 11), and new locknut (Figure 3, Item 9) to bolt (Figure 3, Item 8).
6. Tighten locknut (Figure 3, Item 9) until washers (Figure 3, Item 10) make contact with spring (Figure 3, Item 11).
7. Install two washers (Figure 3, Item 1), spring (Figure 3, Item 11), and new locknut (Figure 3, Item 1) to ISO rack handle (Figure 3, Item 3).
8. Tighten locknut (Figure 3, Item 1) until washers (Figure 3, Item 2) make contact with spring (Figure 3, Item 11).

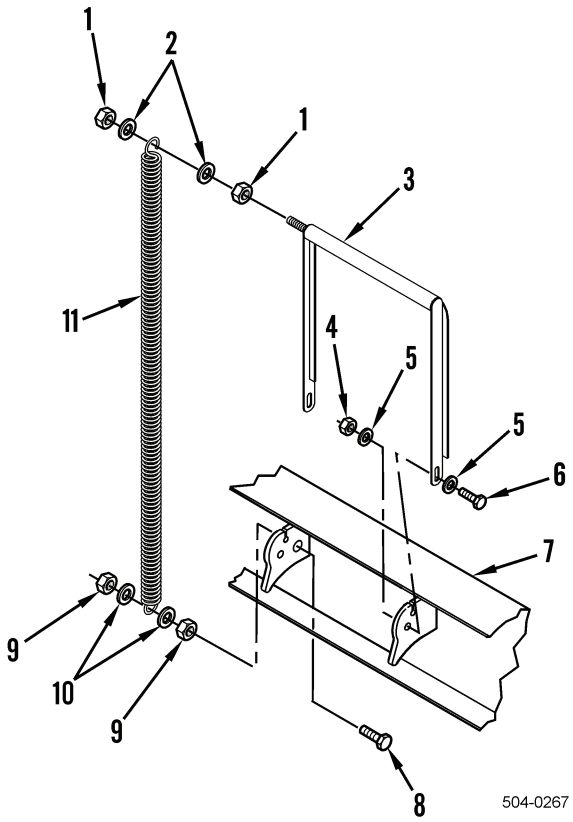


Figure 3. Rear ISO Rack Handles.

END OF TASK

INSTALLATION – CONTINUED

Side Handles

1. Install two plates (Figure 4, Items 9 and 10) on TRM frame (Figure 4, Item 7) and secure with two bolts (Figure 4, Item 8) and two new locknuts (Figure 4, Item 11). Tighten locknuts.
2. Position ISO rack handle (Figure 4, Item 3) to TRM frame (Figure 4, Item 7).
3. Install two bolts (Figure 4, Item 6), four washers (Figure 4, Item 5), and two new locknuts (Figure 4, Item 4) through ISO rack handle (Figure 4, Item 3) and TRM frame (Figure 4, Item 7).
4. Tighten locknuts (Figure 4, Item 4) and back off one half turn.
5. Install two new locknuts (Figure 4, Item 12), two washers (Figure 4, Item 13), and spring (Figure 4, Item 14) on plate (Figure 4, Item 10).
6. Tighten locknut (Figure 4, Item 12) until washers (Figure 4, Item 13) make contact with spring (Figure 4, Item 14).
7. Install two new locknuts (Figure 4, Item 1), two washers (Figure 4, Item 2), and spring (Figure 4, Item 14) on ISO rack handle (Figure 4, Item 3).
8. Tighten locknut (Figure 4, Item 1) until washers (Figure 4, Item 2) make contact with spring (Figure 4, Item 14).

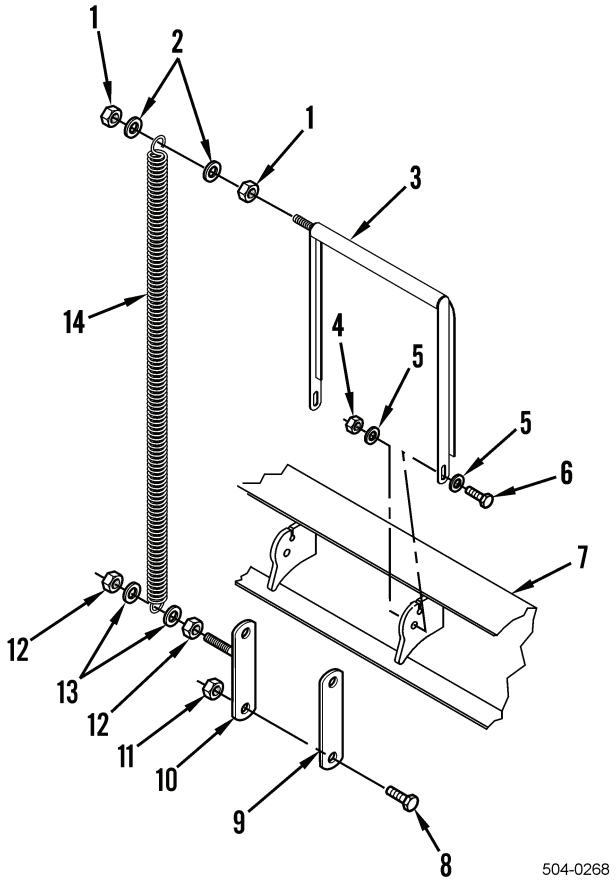


Figure 4. Side ISO Rack Handles.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

REAR HEAD TANK GAUGE REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

References

WP 0143

Materials/Parts

Nut, self-locking, hexagon (WP 0143, Item 1)
Qty: 2

Equipment Condition

Rear head tank gauge pointer removed (WP 0080)

WARNING

Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Remove two locknuts (Figure 1, Item 1) and bolts (Figure 1, Item 3) securing rear head tank gauge (Figure 1 Item 2) to tank assembly (Figure 1, Item 4). Discard locknuts.
2. Remove rear head tank gauge (Figure 1, Item 2) from tank assembly (Figure 1, Item 4).

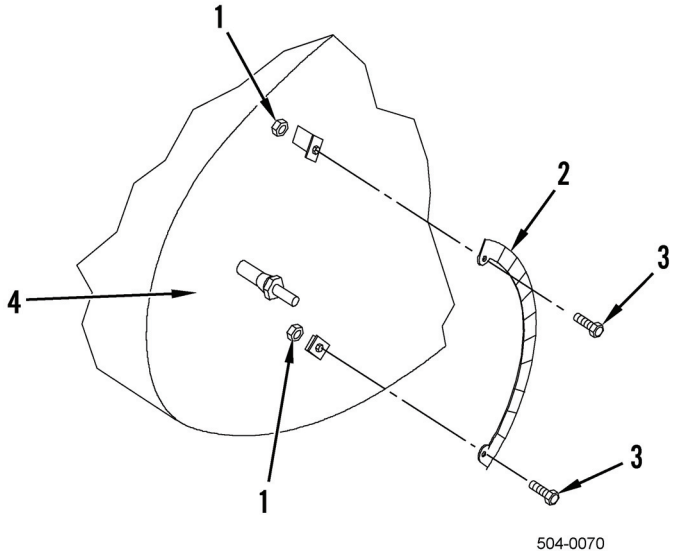


Figure 1. Rear Head Tank Gauge.

END OF TASK

INSTALLATION

1. Install rear head tank gauge (Figure 2, Item 2) on tank assembly (Figure 2, Item 4).
2. Install two bolts (Figure 2, Item 3) and new locknuts (Figure 2, Item 1) on tank assembly (Figure 2, Item 4).

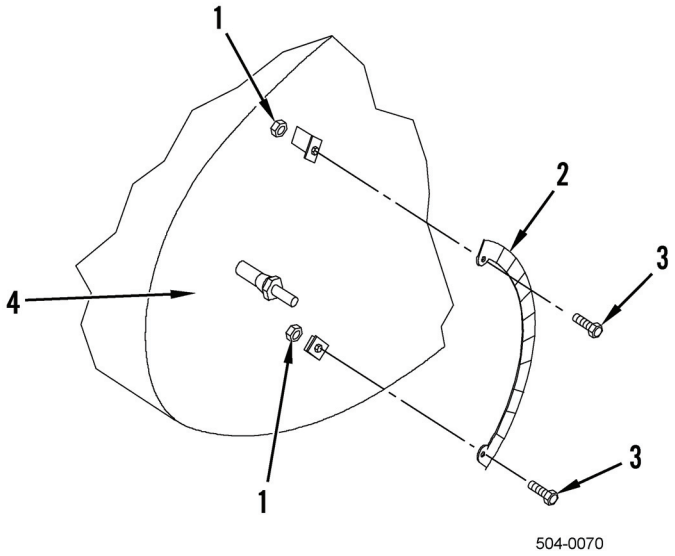


Figure 2. Rear Head Tank Gauge.

END OF TASK

FOLLOW-ON MAINTENANCE

Install rear head tank gauge pointer (WP 0080).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

REAR HEAD TANK GAUGE POINTER REPAIR
Removal, Installation, Adjustment

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)

Materials/Parts

Petrolatum, technical (WP 0181, Item 15)
Gasket (WP 0143, Item 15)
Nut, self-locking, hexagon (WP 0143, Item 6)
O-ring, packing retainer (WP 0143, Item 14)
Washer, lock (WP 0143, Item 5)

Personnel Required

Two

References

WP 0143

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)

WARNING

- Ensure tank is drained. Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly.
- Eye protection is required when opening manhole cover.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in injury or death to personnel.

REMOVAL

1. Push down on manhole cover, release latch, and slowly open manhole cover to gradually release pressure.
2. Remove nut (Figure 1, Item 1), lockwasher (Figure 1, Item 2), washer (Figure 1, Item 5), and bolt (Figure 1, Item 6) securing pointer (Figure 1, Item 4) to tank gauge pointer clamp (Figure 1, Item 3). Discard lockwasher.
3. Remove pointer (Figure 1, Item 4) from tank gauge pointer clamp (Figure 1, Item 3).

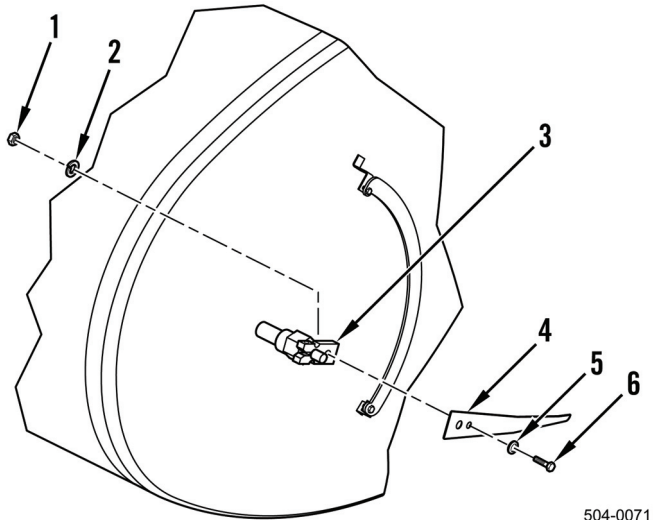


Figure 1. Rear Head Tank Gauge Pointer.

REMOVAL – CONTINUED

4. Remove screw (Figure 2, Item 7) and locknut (Figure 2, Item 5) from tank gauge pointer clamp (Figure 2, Item 6). Discard locknut.
5. Remove tank gauge pointer clamp (Figure 2, Item 6) and two washers (Figure 2, Item 4).
6. Remove dust cap (Figure 2, Item 3) from stem (Figure 2, Item 8).
7. Remove packing retainer (Figure 2, Item 2) from shaft (Figure 2, Item 9). Discard packing retainer.
8. Remove tank gauge gasket (Figure 2, Item 1) from stem (Figure 2, Item 8). Discard gasket.

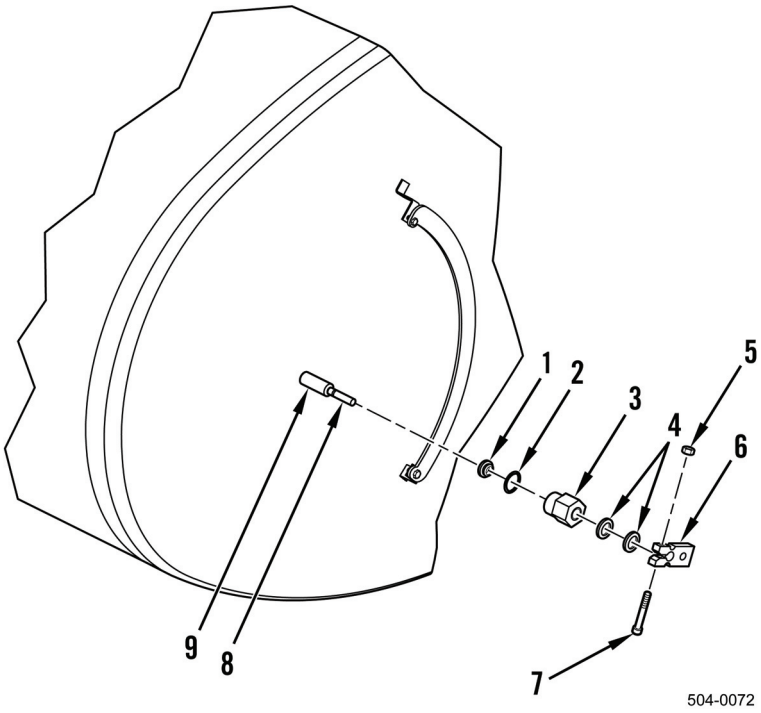


Figure 2. Tank Gauge Gasket and Stem.

END OF TASK

INSTALLATION

1. Insert tank gauge gasket (Figure 2, Item 1) onto stem (Figure 2, Item 8).
2. Lubricate new packing retainer (Figure 2, Item 2) lightly with petrolatum and install packing retainer (Figure 2, Item 2) on stem (Figure 2, Item 8).
3. Install and tighten dust cap (Figure 2, Item 3) on stem (Figure 2, Item 8).
4. Position two washers (Figure 2, Item 4) and tank gauge pointer clamp (Figure 2, Item 6) on stem (Figure 2, Item 8).

NOTE

Do not tighten the screw and nut until after the pointer has been adjusted. See Adjustment task.

5. Install screw (Figure 2, Item 7) and nut (Figure 2, Item 5) onto tank gauge pointer clamp (Figure 2, Item 6).

INSTALLATION – CONTINUED

6. Position pointer (Figure 3, Item 4) on tank gauge pointer clamp (Figure 3, Item 3).
7. Install bolt (Figure 3, Item 6), washer (Figure 3, Item 5), new lockwasher (Figure 3, Item 2), and nut (Figure 3, Item 1) to secure pointer (Figure 3, Item 4) onto tank gauge pointer clamp (Figure 3, Item 5).

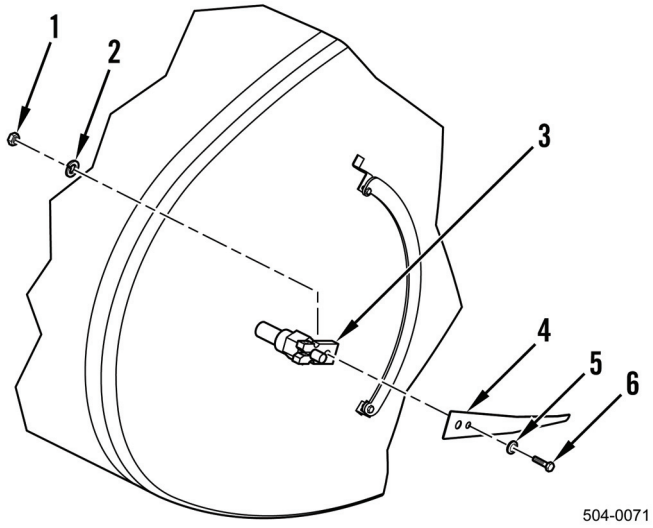


Figure 3. Rear Head Tank Gauge Pointer.

END OF TASK

ADJUSTMENT

1. Adjust pointer (Figure 4, Item 2) 3/4 in. below the 50-gal. mark on the rear head tank gauge.
2. Tighten screw (Figure 4, Item 3) and locknut (Figure 4, Item 4) on tank gauge pointer clamp (Figure 4, Item 1).
3. Loosen screw (Figure 4, Item 3) and repeat steps 1 – 2 until pointer (Figure 4, Item 2) is correct.
4. Torque screw (Figure 4, Item 3) and locknut (Figure 4, Item 4) to 15 lb-ft (20 Nm) once pointer (Figure 4, Item 2) is correct.

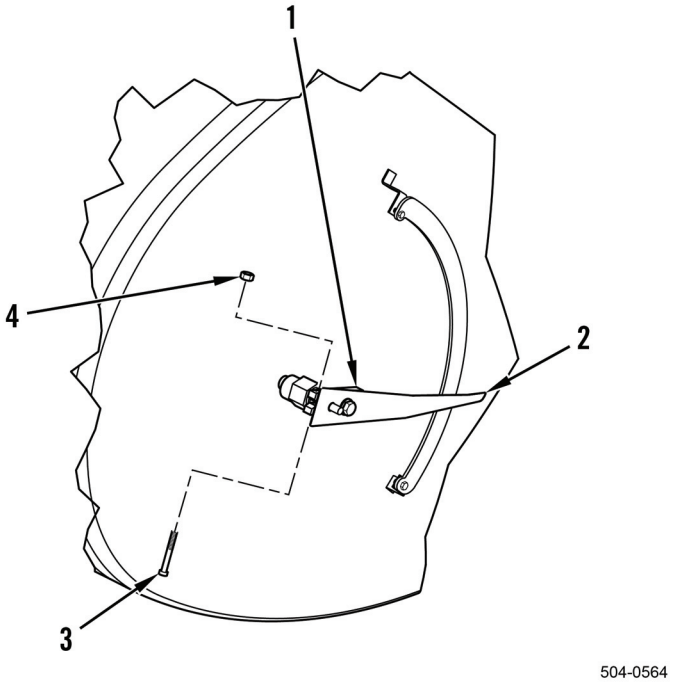


Figure 4. Rear Head Tank Gauge Pointer.

5. Add fuel and check for accuracy.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

VENT VALVE ASSEMBLY REPAIR
Disassembly, Clean, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Gasket (WP 0144, Item 14)
Nut, self-locking, hexagon (WP 0144, Item 15)
Qty: 8
Pin, cotter (WP 0144, Item 10)

Personnel Required

Two

References

WP 0144

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Wet metal surfaces are slippery. Use caution when climbing on tank.
- Ground self and equipment before opening manhole cover to prevent explosion caused by electrostatic charge.
- Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly.
- Eye protection is required when opening manhole cover.
- Failure to comply may result in injury or death to personnel.

DISASSEMBLY

1. Push down on manhole cover, release latch, and slowly open manhole cover to gradually release pressure.
2. Remove loop clamp (Figure 1, Item 4) securing vent hood (Figure 1, Item 1) to vent valve (Figure 1, Item 5).
3. Loosen hose clamp (Figure 1, Item 2) securing vent hood (Figure 1, Item 1) to vapor recovery piping assembly (Figure 1, Item 3).
4. Slide hose clamp (Figure 1, Item 2) onto vapor recovery piping assembly (Figure 1, Item 3).
5. Remove vent hood (Figure 1, Item 1).

NOTE

Steps 6 and 7 will be performed if the plug (Figure 1, Item 15), clamp (Figure 1, Item 16), or vent hood (Figure 1, Item 1) are damaged.

6. Remove clamp (Figure 1, Item 16) from vent hood (Figure 1, Item 1).
7. Remove plug (Figure 1, Item 15) from vent hood (Figure 1, Item 1).

NOTE

Two old locknuts are used in installation for alignment purposes.

8. Remove eight locknuts (Figure 1, Item 14). Discard six locknuts.
9. Lift vent valve (Figure 1, Item 5) from studs (Figure 1, Item 12).
10. Remove gasket (Figure 1, Item 7) from tank assembly (Figure 1, Item 8) and discard gasket.
11. Measure and record distance between bottom of vent valve (Figure 1, Item 5) spring and top of socket (Figure 1, Item 9).
12. Remove push rod (Figure 1, Item 11) from socket (Figure 1, Item 9).
13. Remove plug button (Figure 1, Item 10) from push rod (Figure 1, Item 11).
14. Loosen jamnut (Figure 1, Item 13) and remove socket (Figure 1, Item 9) from vent valve (Figure 1, Item 5).
15. Remove jamnut (Figure 1, Item 13) from threaded rod (Figure 1, Item 6) on vent valve (Figure 1, Item 5).

DISASSEMBLY – CONTINUED

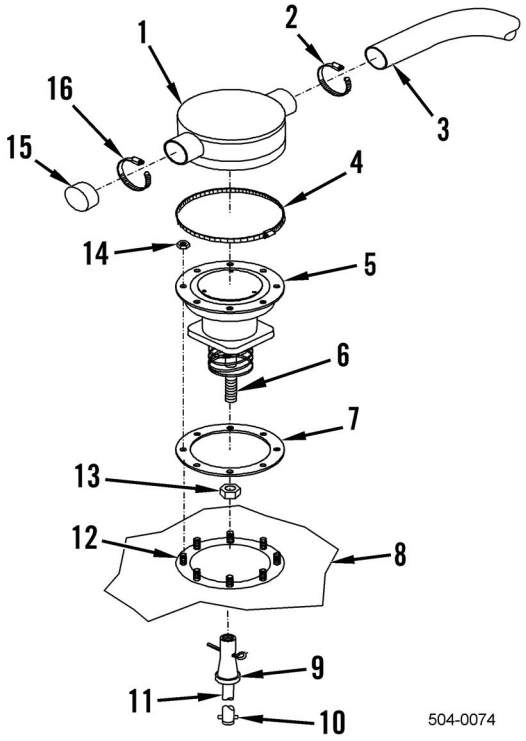


Figure 1. Vent Hood and Vapor Recovery Piping Assembly.

END OF TASK

CLEAN

WARNING

Wear goggles to prevent foreign objects from entering your eyes. Failure to comply may result in eye injury.

1. Clean any gasket debris from mating surfaces.
2. Using cleaning cloth, wipe up any spilled fuel and dispose of IAW local SOP.

END OF TASK

ASSEMBLY

1. Install jamnut (Figure 2, Item 15) on threaded rod (Figure 2, Item 6) to vent valve (Figure 2, Item 5).
2. Install socket (Figure 2, Item 10) on threaded rod (Figure 2, Item 6) to vent valve (Figure 2, Item 5).
3. Install cotter pin (Figure 2, Item 9) through socket (Figure 2, Item 10) and push rod (Figure 2, Item 13).
4. Install plug button (Figure 2, Item 11) on push rod (Figure 2, Item 13).
5. Position push rod (Figure 2, Item 13) into socket (Figure 2, Item 10).
6. Turn push rod (Figure 2, Item 13) CW to decrease measurement or CCW to increase measurement to match distance recorded during removal.
7. Tighten jamnut (Figure 2, Item 15) on threaded rod (Figure 2, Item 6) until it locks on socket (Figure 2, Item 6).
8. Remove cotter pin (Figure 2, Item 9) from socket (Figure 2, Item 10) and push rod (Figure 2, Item 13). Discard cotter pin.
9. Install new gasket (Figure 2, Item 7) on studs (Figure 2, Item 14) to tank assembly (Figure 2, Item 8).
10. Slowly install and align plug button (Figure 2, Item 11) with V2 valve center piston (Figure 2, Item 12).
11. Align vent valve (Figure 2, Item 5) with position marked during removal and with studs (Figure 2, Item 14).
12. Install two old locknuts (Figure 2, Item 16) snugly across from each other on studs (Figure 2, Item 14) and vent valve (Figure 2, Item 5) to tank assembly (Figure 1, Item 8).
13. Tighten locknuts (Figure 2, Item 16) securing vent valve (Figure 2, Item 5) to tank assembly (Figure 2, Item 8).
14. Have assistant open and close V2 valve while observing vent valve (Figure 2, Item 5).

NOTE

The vent valve should open and close, confirming the vent valve is properly aligned with internal valve center piston. If vent valve does not open and close, repeat steps 10 thru 14 until vent valve opens and closes properly.

15. Install six new locknuts (Figure 2, Item 16) on studs (Figure 2, Item 14) to tank assembly (Figure 2, Item 8). Tighten new locknuts.
16. Remove two old locknuts (Figure 2, Item 16) and discard.
17. Install two remaining new locknuts (Figure 2, Item 16) on studs (Figure 2, Item 14) to vent valve (Figure 2, Item 5), and tank assembly (Figure 2, Item 8).

ASSEMBLY – CONTINUED

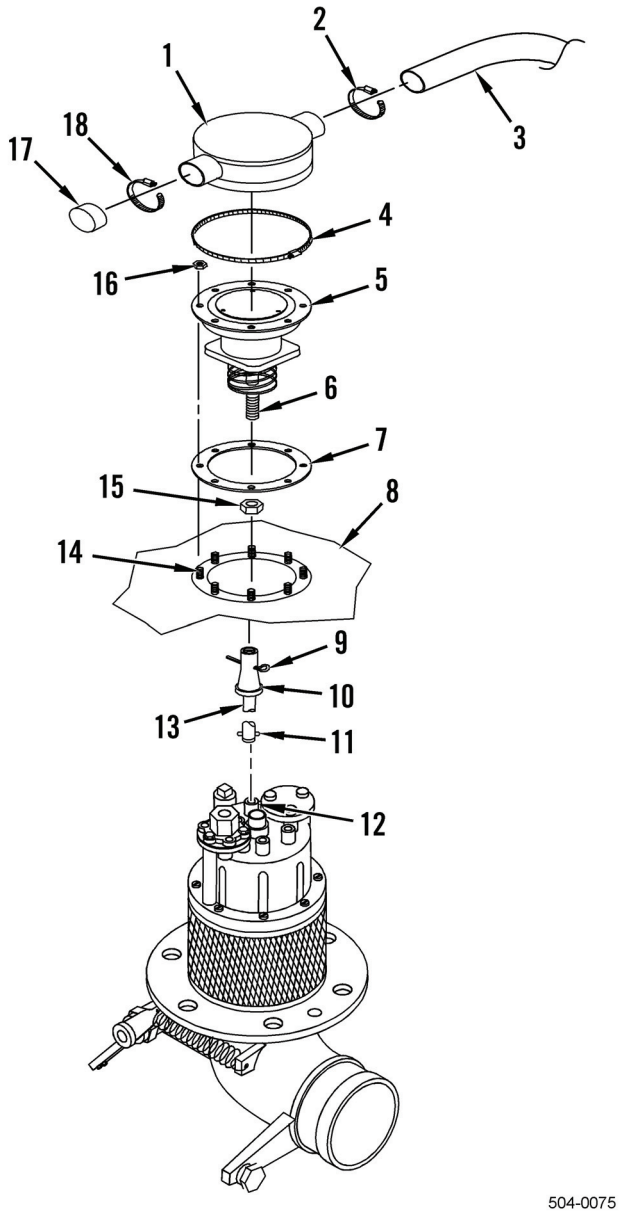


Figure 2. Vent Hood and Vapor Recovery Piping Assembly.

ASSEMBLY – CONTINUED

NOTE

Steps 18 and 19 will be performed only if the plug (Figure 3, Item 6) and clamp (Figure 3, Item 7) have been removed from the vent hood (Figure 3, Item 1).

18. Insert plug (Figure 3, Item 6) in vent hood (Figure 3, Item 1).
19. Install hood clamp (Figure 3, Item 7) on vent hood (Figure 3, Item 1).
20. Install vent hood (Figure 3, Item 1) to vent valve (Figure 3, Item 5) and connect vapor recovery piping (Figure 3, Item 3) to vent hood (Figure 3, Item 1).
21. Install loop clamp (Figure 3, Item 4) on vent hood (Figure 3, Item 1) and tighten to secure to vent valve (Figure 3, Item 5).
22. Slide clamp (Figure 3, Item 2) from vapor recovery piping (Figure 3, Item 3) on vent hood (Figure 3, Item 1). Tighten clamp (Figure 3, Item 2).

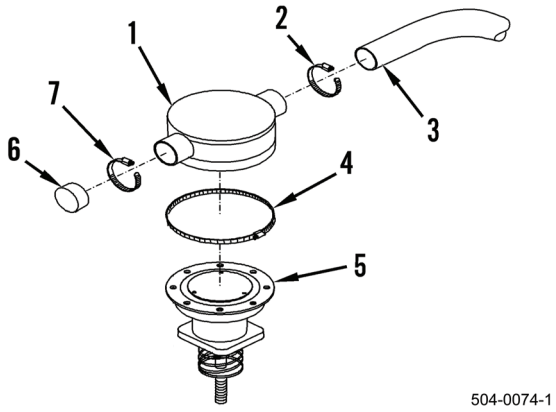


Figure 3. Vent Hood, Vapor Recovery Piping Assembly, and V2 Valve.

23. Close manhole cover.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TANK COVER PLATE REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Cloth, cleaning (WP 0181, Item 4)
Sealing Compound (WP 0181, Item 19)
Gasket (WP 0145, Item 4)
Nut, self-locking, hexagon (WP 0145, Item 1)
Qty: 4

References

WP 0145

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Wet metal surfaces are slippery. Use caution when climbing on tank.
- Ground self and equipment before opening manhole cover to prevent explosion caused by electrostatic charge.
- Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly.
- Eye protection is required when opening manhole cover.
- Failure to comply may result in injury or death to personnel.

REMOVAL

1. Push down on manhole cover, release latch, and slowly open manhole cover to gradually release pressure.
2. Remove four locknuts (Figure 1, Item 1) and washers (Figure 1, Item 2), and tank cover plate (Figure 1, Item 3) from tank (Figure 1, Item 5). Discard locknuts.
3. Remove gasket (Figure 1, Item 4) from studs (Figure 1, Item 6) on tank (Figure 1, Item 5). Discard gasket.

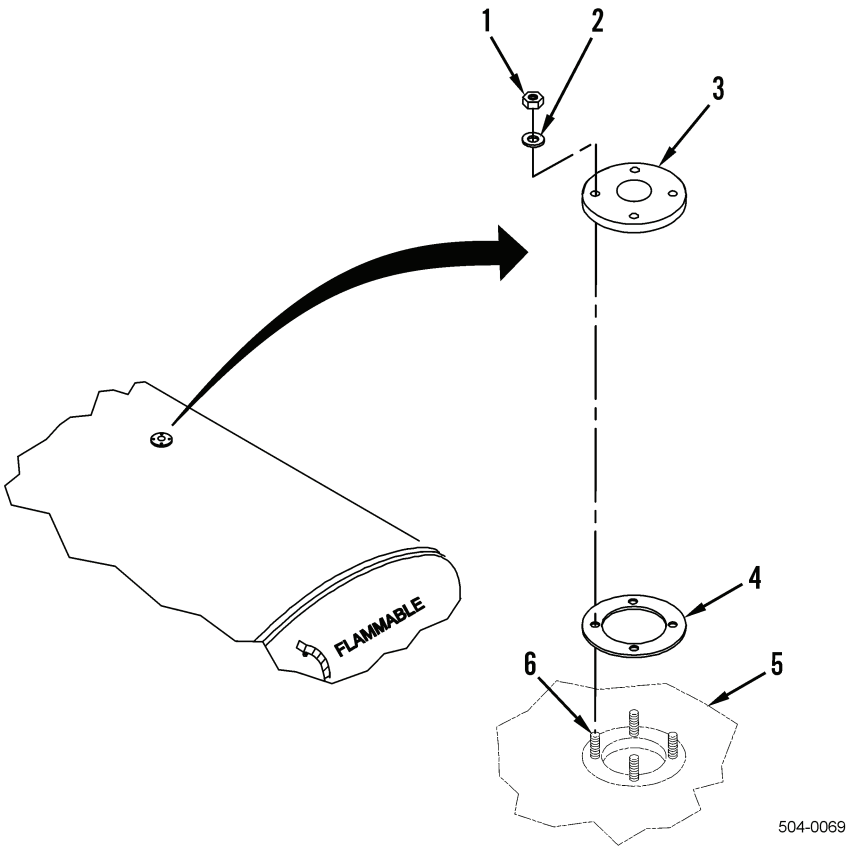


Figure 1. Tank Cover Plate.

WARNING

Wear goggles to prevent foreign objects from entering your eyes. Failure to comply may result in eye injury.

4. Clean any gasket debris from mating surfaces.
5. Using cleaning cloth, wipe up any spilled fuel.

END OF TASK

INSTALLATION

1. Install new gasket (Figure 1, Item 4) with sealing compound on studs (Figure 1, Item 6) to tank (Figure 1, Item 5).
2. Install tank cover plate (Figure 1, Item 3), four washers (Figure 1, Item 2), and new locknuts (Figure 1, Item 1) to tank (Figure 1, Item 5).
3. Close manhole cover.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

STOWAGE TUBE ASSEMBLY REPAIR
Removal, Disassembly, Assembly, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Compressing tool, splicing sleeve (WP 0182, Item 1)

Materials/Parts

Cable, gauge stick (WP 0146, Item 5) Qty: 2
Nut, self-locking, hexagon (WP 0146, Item 9) Qty: 4
Sleeve, wire rope (WP 0146, Item 6) Qty: 4

Personnel Required

Two

References

WP 0146

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

1. Remove gauge stick from stowage tube assembly (Figure 1, Item 2).
2. Remove four locknuts (Figure 1, Item 1), bolts (Figure 1, Item 3), eight washers (Figure 1, Item 4), and stowage tube assembly (Figure 1, Item 2). Discard locknuts.

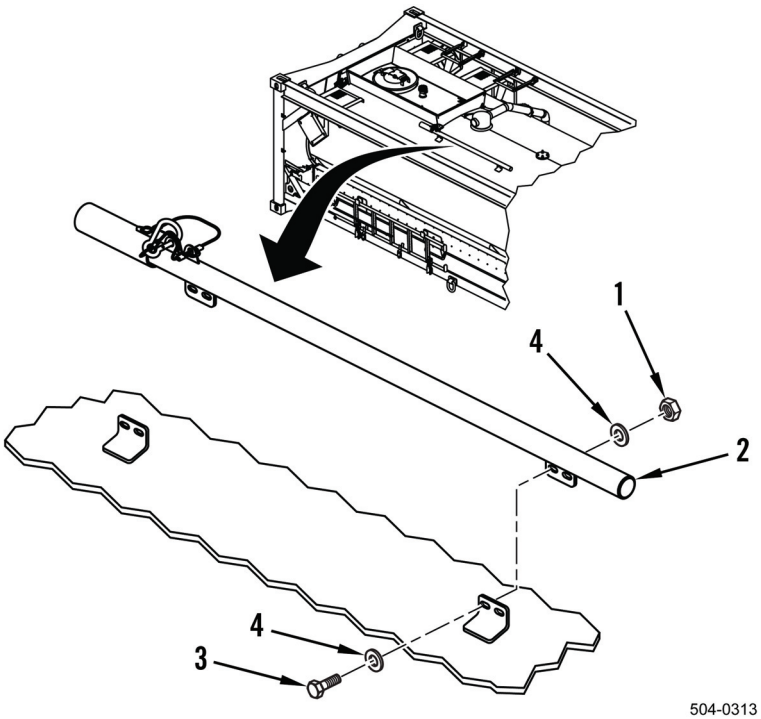


Figure 1. Stowage Tube Assembly.

END OF TASK

DISASSEMBLY

1. Remove four sleeve stops (Figure 2, Item 3), two wire ropes (Figure 2, Item 1), and spring snap clip (Figure 2, Item 2). Discard sleeve stops and wire rope.
2. Remove cover (Figure 2, Item 5) from tube (Figure 2, Item 4).

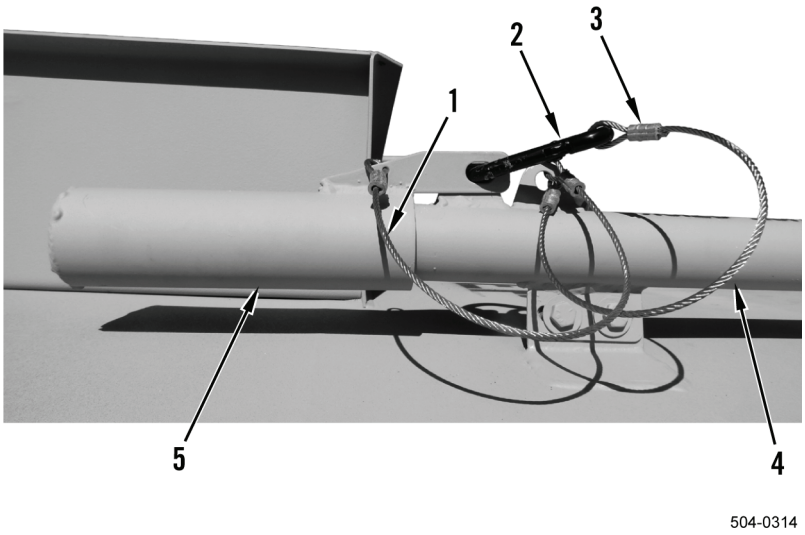


Figure 2. Stowage Tube Assembly.

END OF TASK

ASSEMBLY

1. Install cover (Figure 2, Item 5) on tube (Figure 2, Item 4).
2. Install four new sleeve stops (Figure 2, Item 3), two new wire ropes (Figure 2, Item 1), and spring snap clip (Figure 2, Item 2).

END OF TASK

INSTALLATION

1. Install stowage tube assembly (Figure 3, Item 2), eight washers (Figure 3, Item 4), four bolts (Figure 3, Item 3), and new locknuts (Figure 3, Item 1).
2. Install gauge stick into stowage tube assembly (Figure 3, Item 2).

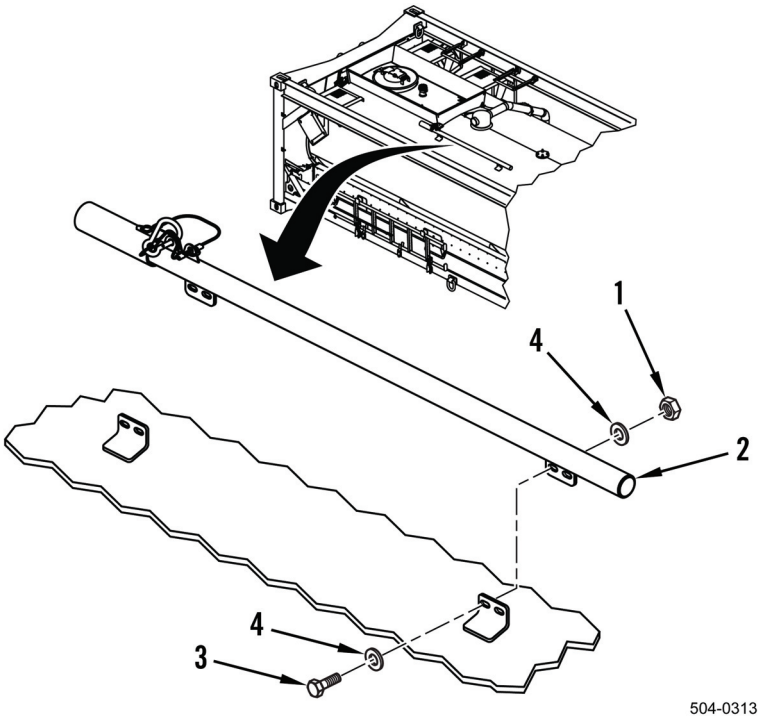


Figure 3. Stowage Tube Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FRONT AND REAR DRAIN LINES REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Sealing compound (WP 0181, Item 20)
Nut, self-locking, hexagon (WP 0147, Item 10)
Qty: 5

References

WP 0147

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Use cotton waste for cleaning purposes; other material may generate static electricity and cause fuel to ignite. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Remove front drain hose (Figure 1, Item 26).
   a. Verify shutoff valve (Figure 1, Item 3) is in the closed position.
   b. Remove three locknuts (Figure 1, Item 24) and loop clamps (Figure 1, Item 25) securing front drain hose (Figure 1, Item 26) to tank assembly (Figure 1, Item 9). Discard locknuts.
   c. Loosen hose clamp (Figure 1, Item 1) securing front drain hose (Figure 1, Item 26) to hose barb (Figure 1, Item 2) on shutoff valve (Figure 1, Item 3).
   d. Remove front drain hose (Figure 1, Item 26) from hose barb (Figure 1, Item 2).
   e. Remove hose clamp (Figure 1, Item 1) from front drain hose (Figure 1, Item 26).
   f. Rotate pipe elbow (Figure 1, Item 7) upward to allow access to remove shutoff valve (Figure 1, Item 3).
   g. Remove shutoff valve (Figure 1, Item 3) from pipe nipple (Figure 1, Item 6).
   h. Remove pipe nipple (Figure 1, Item 6) from pipe elbow (Figure 1, Item 7).
   i. Remove pipe elbow (Figure 1, Item 7) from pipe nipple (Figure 1, Item 8).
   j. Remove pipe nipple (Figure 1, Item 8) and bushing (Figure 1, Item 9) from tank assembly (Figure 1, Item 10).
   k. Remove hose barb (Figure 1, Item 2) from shutoff valve (Figure 1, Item 3).
2. Remove upper rear drain hose (Figure 1, Item 15).
   a. Verify shutoff valve (Figure 1, Item 18) is in the closed position.
   b. Loosen two hose clamps (Figure 1, Items 14 and 16) securing upper rear drain hose (Figure 1, Item 15) to hose barbs (Figure 1, Items 13 and 17).
   c. Remove upper rear drain hose (Figure 1, Item 15) from hose barbs (Figure 1, Items 13 and 17).
   d. Remove hose clamps (Figure 1, Items 14 and 16) from upper rear drain hose (Figure 1, Item 15).
   e. Remove hose barb (Figure 1, Item 13) from bushing (Figure 1, Item 12) on tank assembly (Figure 1, Item 11).
3. Remove lower rear drain hose (Figure 1, Item 23) and shutoff valve (Figure 1, Item 18).
   a. Loosen hose clamp (Figure 1, Item 20) securing lower rear drain hose (Figure 1, Item 23) to hose barb (Figure 1, Item 19) on shutoff valve (Figure 1, Item 18).
   b. Remove two locknuts (Figure 1, Item 21) securing lower drain hose (Figure 1, Item 23) and two loop clamps (Figure 1, Item 22) to tank assembly (Figure 1, Item 11). Discard locknuts.
   c. Remove lower rear drain hose (Figure 1, Item 23) from hose barb (Figure 1, Item 19).
   d. Remove hose clamp (Figure 1, Item 20) from lower rear drain hose (Figure 1, Item 23).
   e. Remove two screws (Figure 1, Item 27) securing shutoff valve (Figure 1, Item 18).

REMOVAL – CONTINUED

f. Remove shutoff valve (Figure 1, Item 18).

g. Remove hose barbs (Figure 1, Items 17 and 19) from shutoff valve (Figure 1, Item 18).

h. Remove four captive screws (Figure 1, Item 5) and two ID tags (Figure 1, Item 4) from two shutoff valves (Figure 1, Items 3 and 19).

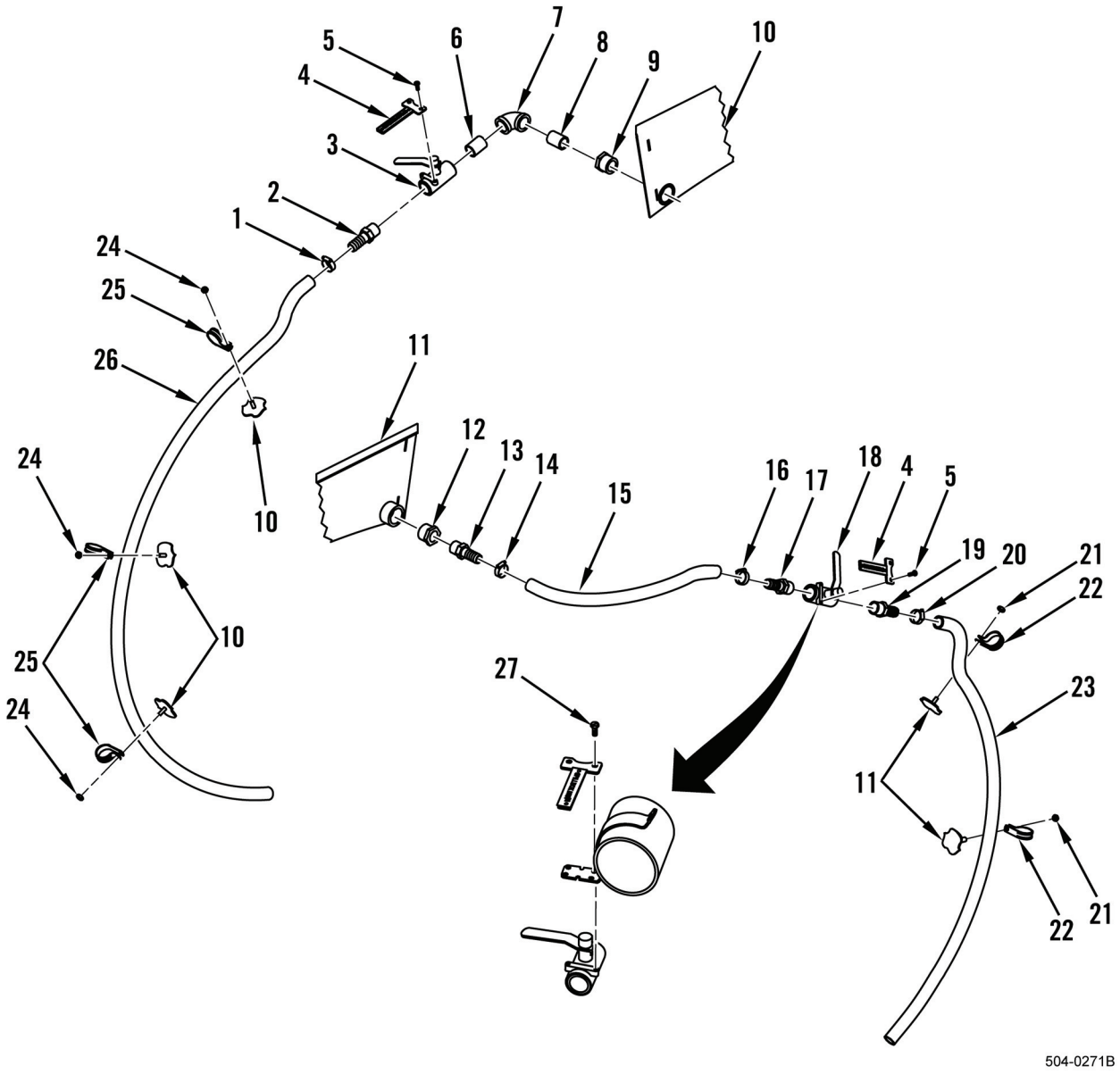


Figure 1. Front and Rear Drain Lines.

END OF TASK

INSTALLATION

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing of vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

NOTE

Sealing compound needs to be applied to all threaded mating surfaces.

1. Install lower rear drain hose (Figure 2, Item 23) and shutoff valve (Figure 2, Item 18).
   a. Install ID tag (Figure 2, Item 4) and two captive screws (Figure 2, Item 5) on shutoff valve (Figure 2, Item 18) if removed.
   b. Apply sealing compound to threads of hose barbs (Figure 2, Items 17 and 19) and install hose barbs into shutoff valve (Figure 2, Item 18).
   c. Position shutoff valve (Figure 2, Item 18) and install two screws (Figure 2, Item 27).
   d. Install hose clamp (Figure 2, Item 20) on lower rear drain hose (Figure 2, Item 23).
   e. Install lower rear drain hose (Figure 2, Item 23) on hose barb (Figure 2, Item 19) and tighten clamp (Figure 2, Item 20).
   f. Install two loop clamps (Figure 2, Item 22) on lower rear drain hose (Figure 2, Item 23).
   g. Position lower rear drain hose (Figure 2, Item 23) and two loop clamps (Figure 2, Item 22) on tank assembly (Figure 2, Item 11) and secure with two new locknuts (Figure 2, Item 21).
2. Install upper rear drain hose (Figure 2, Item 15).
   a. Apply sealing compound to threads of hose barb (Figure 2, Item 13) and install hose barb into bushing (Figure 2, Item 12) on tank assembly (Figure 2, Item 11) if removed.
   b. Install two hose clamps (Figure 2, Items 16 and 14) on upper rear drain hose (Figure 2, Item 15).
   c. Install upper rear drain hose (Figure 2, Item 15) on hose barb (Figure 2, Item 13).
   d. Install other end of upper rear drain hose (Figure 2, Item 15) on hose barb (Figure 2, Item 17).
   e. Tighten two hose clamps (Figure 2, Items 16 and 14) to secure upper rear drain hose (Figure 2, Item 15)
3. Install front drain hose (Figure 2, Item 26).
   a. Apply sealing compound to threads of pipe nipple (Figure 2, Item 8) and install pipe nipple into bushing (Figure 2, Item 9).
   b. Apply sealing compound to threads of pipe nipple (Figure 2, Item 8) and install pipe elbow (Figure 2, Item 7) onto pipe nipple.
   c. Apply sealing compound to threads of bushing (Figure 2, Item 10) and install elbow (Figure 2, Item 7), nipple (Figure 2, Item 8), and bushing on tank assembly (Figure 2, Item 9).
   d. Apply sealing compound to threads of pipe nipple (Figure 2, Item 6) and install pipe nipple into pipe elbow (Figure 2, Item 7).
   e. Apply sealing compound to threads of hose barb (Figure 2, Item 2) and install hose barb into shutoff valve (Figure 2, Item 3).
   f. Apply sealing compound to threads of pipe nipple (Figure 2, Item 6) and install shutoff valve (Figure 2, Item 3) on elbow (Figure 2, Item 7).

INSTALLATION – CONTINUED

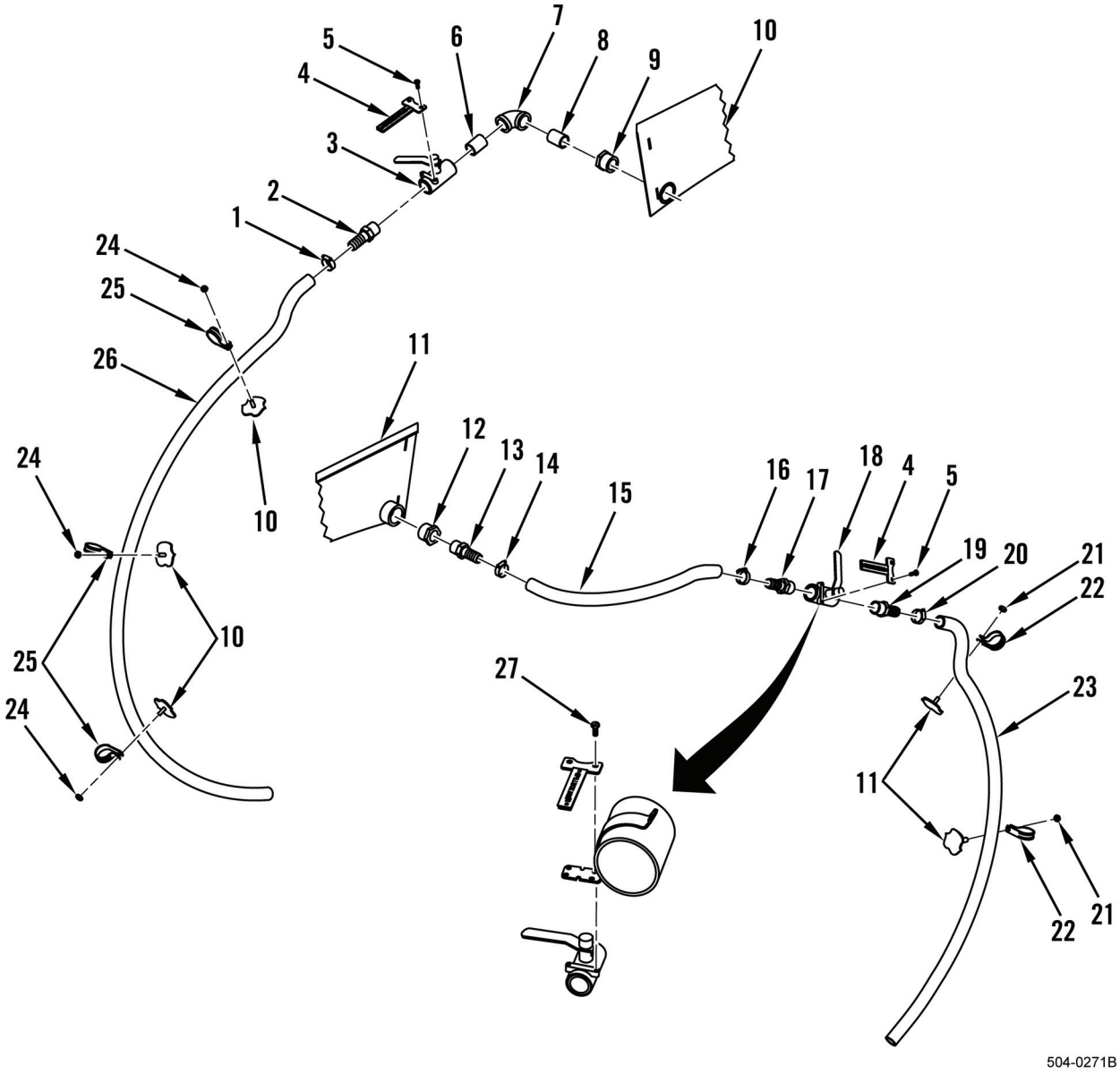


Figure 2. Front and Rear Drain Lines.

g. If removed, install ID tag (Figure 2, Item 4) and two captive screws (Figure 2, Item 5) on shutoff valve (Figure 2, Item 5).

h. Install hose clamp (Figure 2, Item 1) on front drain hose (Figure 2, Item 26).

i. Install front drain hose (Figure 2, Item 26) on hose barb (Figure 2, Item 2) and tighten hose clamp (Figure 2, Item 1).

j. Install three loop clamps (Figure 2, Item 25) on front drain hose (Figure 2, Item 26).

k. Position front drain hose (Figure 2, Item 26) and loop clamps (Figure 2, Item 25) on tank assembly (Figure 2, Item 9) and secure with three new locknuts (Figure 2, Item 24).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

LIQUID LEVEL SWITCH REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Respirator, air filtering (WP 0181, Item 17)

Materials/Parts

Sealing compound (WP 0181, Item 20)
Washer, lock (WP 0148, Item 2) Qty: 2

Personnel Required

Two

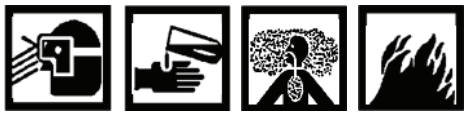
References

WP 0148

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)
Manhole cover removed (WP 0111)

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Disconnect blue fuel line (Figure 1, Item 15) from outlet elbow (Figure 1, Item 4) on pressure sensor (Figure 1, Item 7).
2. Disconnect clear precheck valve line (Figure 1, Item 5) from adapter (Figure 1, Item 6) on pressure sensor (Figure 1, Item 7).
3. Disconnect red line (Figure 1, Item 11) from inlet elbow (Figure 1, Item 10) on pressure sensor (Figure 1, Item 7).
4. Mark position of lower jamnut (Figure 1, Item 12) on threaded rod (Figure 1, Item 13) to aid in installation.

CAUTION

Use two wrenches to loosen jamnut from threaded rod on liquid level switch. Failure to comply may result in damage to equipment.

5. Using two wrenches, hold lower jamnut (Figure 1, Item 12) steady and rotate upper wrench CCW until upper jamnut (Figure 1, Item 2) is loosened.

NOTE

The rubber hose will need to be secured to prevent it from dropping into tank.

6. Loosen hose clamp (Figure 1, Item 8) and remove rubber hose (Figure 1, Item 9) from pressure sensor (Figure 1, Item 7).
7. Hold pressure sensor (Figure 1, Item 7) and remove upper jamnut (Figure 1, Item 2) and lockwasher (Figure 1, Item 3) from threaded rod (Figure 1, Item 13). Discard lockwasher.
8. Remove threaded rod (Figure 1, Item 13) with pressure sensor (Figure 1, Item 7) and lockwasher (Figure 1, Item 14) from bracket (Figure 1, Item 1). Discard lockwasher.
9. Remove inlet elbow (Figure 1, Item 10), outlet elbow (Figure 1, Item 4), and adapter (Figure 1, Item 6) from pressure sensor (Figure 1, Item 7).
10. Remove sealant from inlet elbow (Figure 1, Item 10), outlet elbow (Figure 1, Item 4), and adapter (Figure 1, Item 6).
11. Remove lower jamnut (Figure 1, Item 12) from threaded rod (Figure 1, Item 13).

REMOVAL – CONTINUED

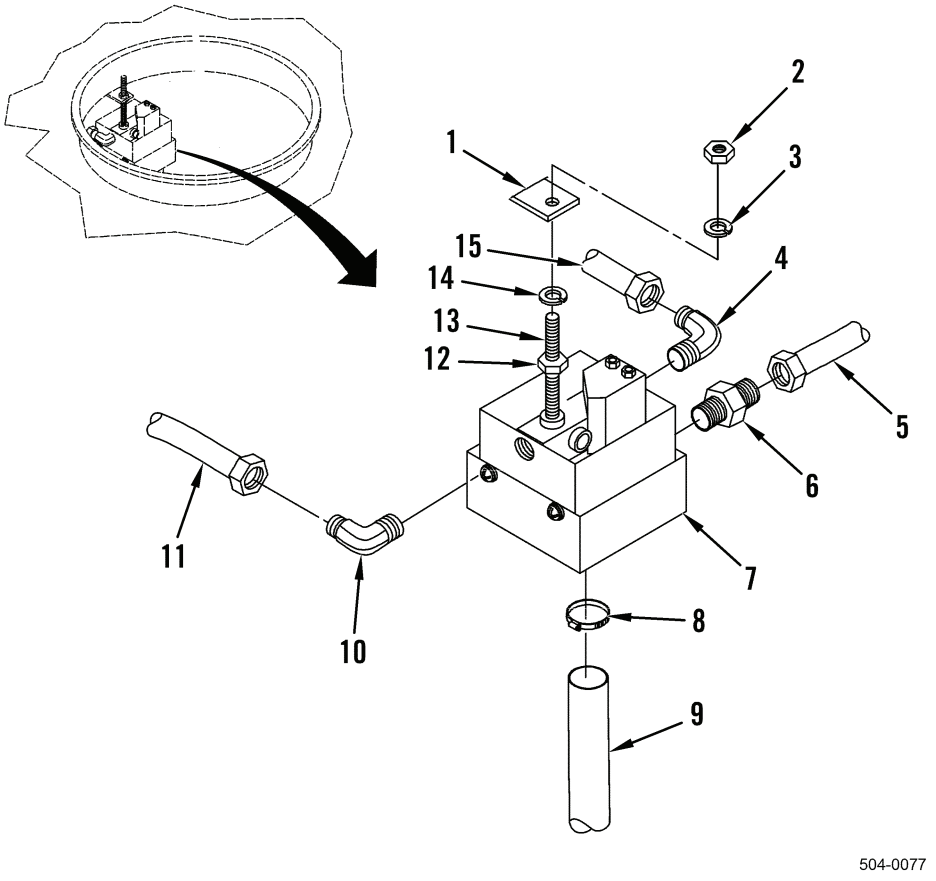
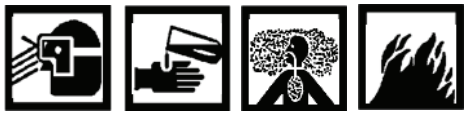


Figure 1. Liquid Level Switch.

END OF TASK

INSTALLATION

WARNING



Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

1. Apply sealing compound to threaded ends of inlet elbow (Figure 2, Item 10), outlet elbow (Figure 2, Item 4), and adapter (Figure 2, Item 6).
2. Install inlet elbow (Figure 2, Item 10), outlet elbow (Figure 2, Item 4) and adapter (Figure 2, Item 6) on pressure sensor (Figure 2, Item 7).

NOTE

The new rod will need to be marked with position previously marked on old rod.

3. Install lower jamnut (Figure 2, Item 12) and new lockwasher (Figure 2, Item 14) to previously marked position on threaded rod (Figure 2, Item 13).
4. Insert threaded rod (Figure 2, Item 13) with new lockwasher (Figure 2, Item 3) into bracket (Figure 2, Item 1) and install and hand tighten upper jamnut (Figure 2, Item 2).
5. Position pressure sensor (Figure 2, Item 7) with center of inlet elbow (Figure 2, Item 10) 43 in. (109.22 cm) from bottom of tank.

CAUTION

Use two wrenches to tighten jamnuts on threaded rod. Failure to comply may result in damage to equipment.

6. Use two wrenches to hold lower jamnut (Figure 2, Item 12) steady and rotate upper jamnut (Figure 2, Item 2) CW until tightened.
7. Install hose (Figure 2, Item 9) on pressure sensor (Figure 2, Item 7) and tighten hose clamp (Figure 2, Item 8).
8. Install clear precheck valve line (Figure 2, Item 5) on adapter (Figure 2, Item 6) and tighten.
9. Install blue fuel line (Figure 2, Item 15) on outlet elbow (Figure 2, Item 4) of pressure sensor (Figure 2, Item 7) and tighten.
10. Install red fuel line (Figure 2, Item 11) on inlet elbow (Figure 2, Item 10) of pressure sensor (Figure 2, Item 7) and tighten.

INSTALLATION – CONTINUED

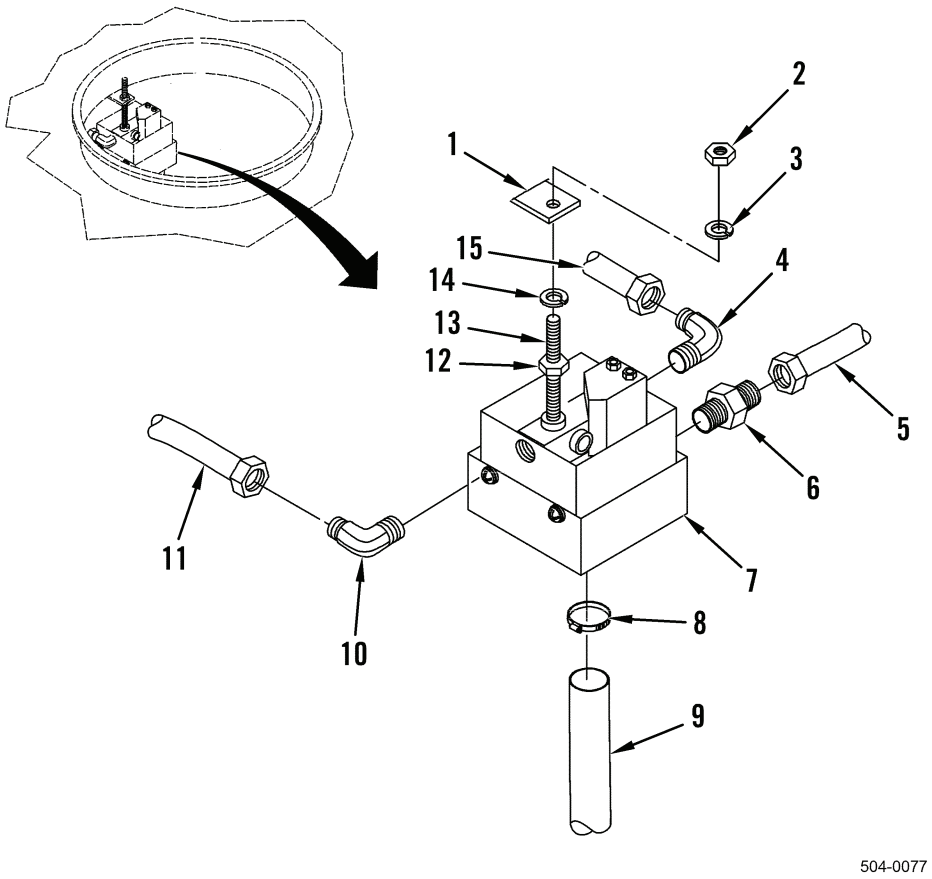


Figure 2. Liquid Level Switch.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install manhole cover (WP 0111).
2. Add fuel to TRM (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TOOL BOX REPAIR
Removal, Disassembly, Assembly, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Compression tool, multidiameter (WP 0182, Item 2)
Compressing tool, splicing sleeve (WP 0182, Item 1)
Drill, battery, rechargable (WP 0182, Item 6)
Drill set, twist (WP 0182, Item 7)
Tool kit, blind (WP 0182, Item 11)

Materials/Parts

Nut, self-locking, hexagon (WP 0149, Item 19) Qty: 2
Nut, self-locking, hexagon (WP 0149, Item 24) Qty: 2

Materials/Parts – Continued

Nut, self-locking, hexagon (WP 0149, Item 25) Qty: 6
Rivet, solid (5/32") (WP 0149, Item 5) Qty: 18
Bushing, sleeve (WP 0149, Item 7) Qty: 3
Sleeve, wire rope (WP 0149, Item 10)

Personnel Required

Two

References

WP 0149

Equipment Condition

Tool box empty
ISO rack placard removed (WP 0071)

REMOVAL

1. Remove six locknuts (Figure 1, Item 1), six bolts (Figure 1, Item 5), and 12 washers (Figure 1, Item 2) securing tool box (Figure 1, Item 4) to TRM frame (Figure 1, Item 3). Discard locknuts.
2. Remove tool box (Figure 1, Item 4) from TRM frame (Figure 1, Item 3).

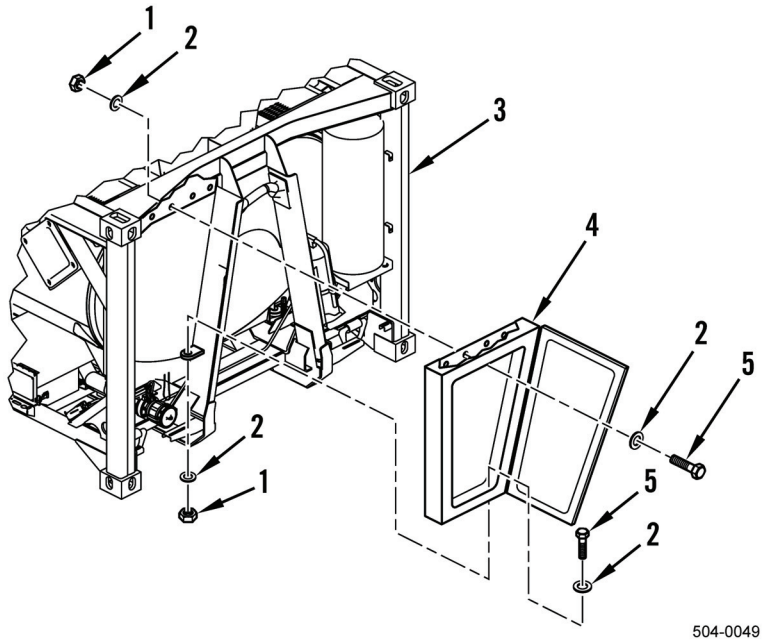


Figure 1. Tool Box.

END OF TASK

DISASSEMBLY

1. Remove seal (Figure 2, Item 5) from tool box (Figure 2, Item 2).
2. Disassemble door stop cable (Figure 2, Item 8).
   a. Remove two stop sleeves (Figure 2, Item 7) securing door stop cable (Figure 2, Item 8) to tool box (Figure 2, Item 2) and tool box door (Figure 2, Item 4). Discard stop sleeves.
   b. Remove door stop cable (Figure 2, Item 8) from tool box (Figure 2, Item 2) and tool box door (Figure 2, Item 4).
3. Disassemble snap clip cable (Figure 2, Item 11).
   a. Remove stop sleeve (Figure 2, Item 7) securing snap clip cable (Figure 2, Item 11) to tool box (Figure 2, Item 2). Discard stop sleeve.
   b. Remove wire rope sleeve (Figure 2, Item 10) and snap clip (Figure 2, Item 9) from snap clip cable (Figure 2, Item 11).
4. Disassemble strike (Figure 2, Items 13) and striker frame (Figure 2, Items 15).
   a. Remove two bolts (Figure 2, Item 12) and two locknuts (Figure 2, Item 16) securing strike (Figure 2, Item 13) to door striker frame (Figure 2, Item 15). Discard locknuts.
   b. Remove strike (Figure 2, Item 13).
   c. Remove two screws (Figure 2, Item 14) and locknuts (Figure 2, Item 1) securing door striker frame (Figure 2, Item 15) to tool box (Figure 2, Item 2). Discard locknuts.
   d. Remove door striker frame (Figure 2, Item 15) from tool box (Figure 2, Item 2).
5. Disassemble door hinges (Figure 2, Item 3) and tool box door (Figure 2, Item 4).

WARNING

Wear eye protection when removing rivets. Failure to comply may result in an eye injury.

   a. Remove nine rivets (Figure 2, Item 6) securing tool box door (Figure 2, Item 4) to tool box (Figure 2, Item 2). Discard rivets.
   b. Remove tool box door (Figure 2, Item 4) with hinges (Figure 2, Item 3) from tool box (Figure 2, Item 2).
   c. Remove nine rivets (Figure 2, Item 6) securing hinges (Figure 2, Item 3) to tool box door (Figure 2, Item 4). Discard rivets.
   d. Remove hinges (Figure 2, Item 3) from tool box door (Figure 2, Item 4).

END OF TASK

ASSEMBLY

1. Assemble door hinge (Figure 2, Item 3).
   a. Install nine new rivets (Figure 2, Item 6) to secure hinge (Figure 2, Item 3) to tool box door (Figure 2, Item 4).
   b. Install nine new rivets (Figure 2, Item 6) to secure door (Figure 2, Item 4) to tool box (Figure 2, Item 2).
2. Assemble strike (Figure 2, Item 13) and striker frame (Figure 2, Item 15).
   a. Install door striker frame (Figure 2, Item 15) to tool box (Figure 2, Item 2).

ASSEMBLY – CONTINUED

b. Install two screws (Figure 2, Item 14) and new locknuts (Figure 2, Item 1) to secure door striker frame (Figure 2, Item 15) to tool box (Figure 2, Item 2).

c. Install strike (Figure 2, Item 13) with two bolts (Figure 2, Item 12) and new locknuts (Figure 2, Item 16) to door striker frame (Figure 2, Item 15).

3. Assemble snap clip cable (Figure 2, Item 11).

a. Install snap clip cable (Figure 2, Item 11) through bottom of tool box (Figure 2, Item 2).

b. Install new stop sleeve (Figure 2, Item 7) on snap clip cable (Figure 2, Item 11) and crimp tightly.

c. Make a loop with end of snap clip cable (Figure 2, Item 11).

d. Install snap clip (Figure 2, Item 9) and new wire rope sleeve (Figure 2, Item 10) onto snap clip cable (Figure 2, Item 11) and crimp tightly.

4. Assemble door stop cable (Figure 2, Item 8).

a. Install cable (Figure 2, Item 8) through bottom of tool box (Figure 2, Item 2) and tool box door (Figure 2, Item 4).

b. Install two new stop sleeves (Figure 2, Item 7) on cable (Figure 2, Item 8) and crimp tightly.

5. Install seal (Figure 2, Item 5) on tool box (Figure 2, Item 2).

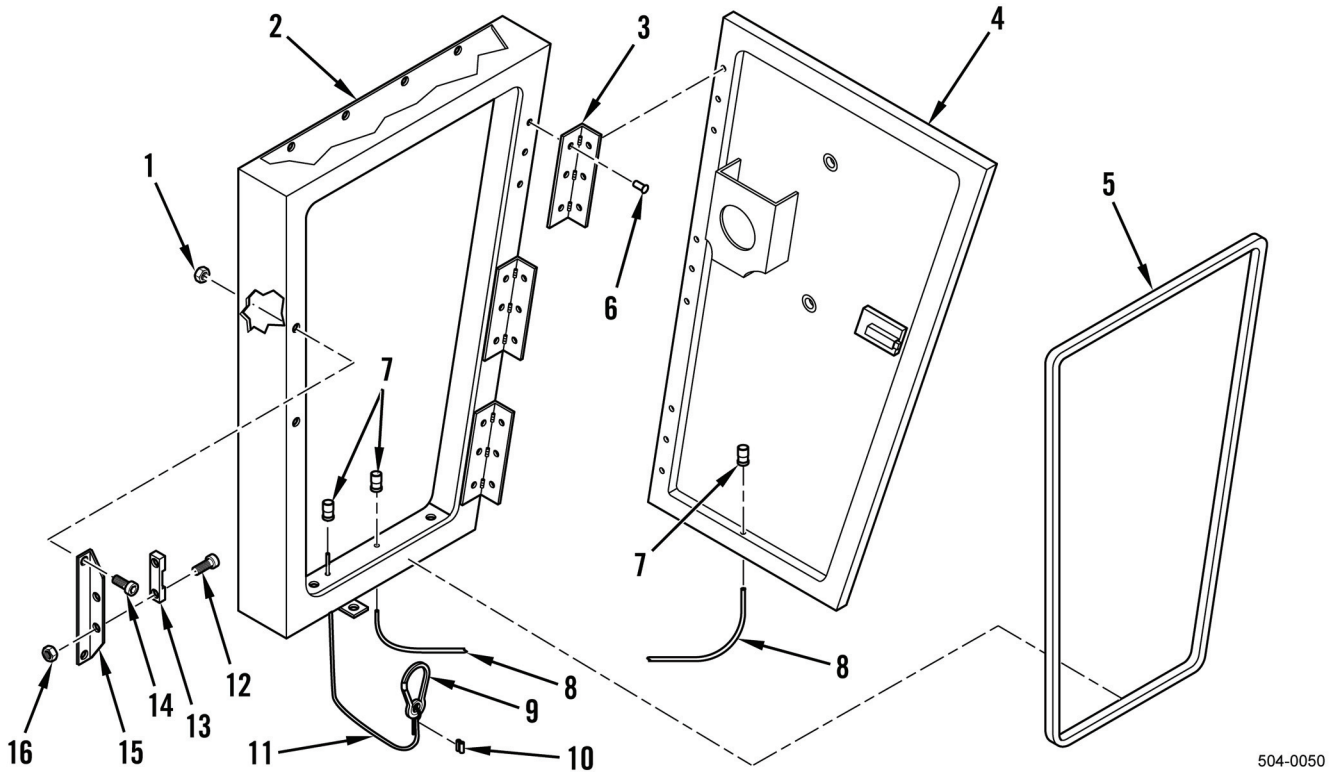


Figure 2. Tool Box.

END OF TASK

INSTALLATION

1. Position tool box (Figure 3, Item 4) on TRM (Figure 3, Item 3).
2. Install six bolts (Figure 3, Item 5), 12 washers (Figure 3, Item 2), and six new locknuts (Figure 3, Item 1) on tool box (Figure 3, Item 4).
3. Tighten six locknuts (Figure 3, Item 1) to secure tool box (Figure 3, Item 4) on TRM (Figure 3, Item 3).

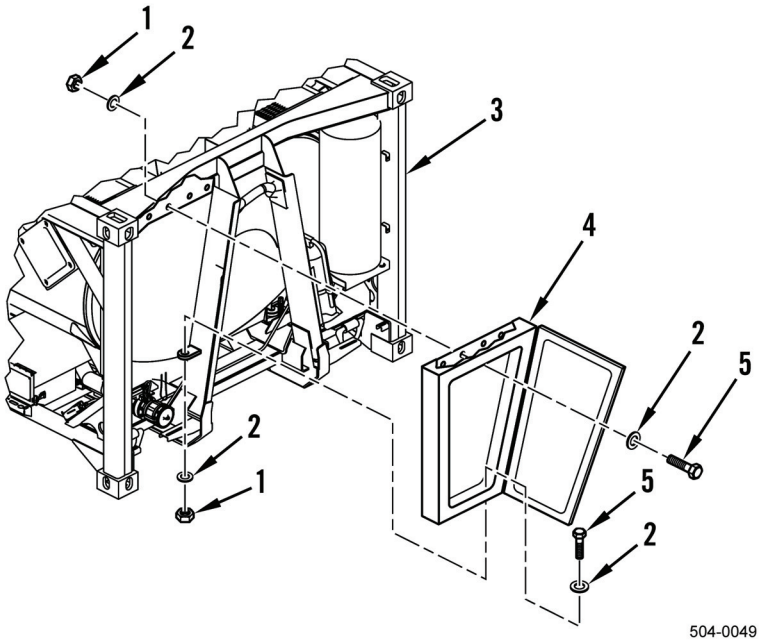


Figure 3. Tool Box.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install ISO rack placard (WP 0071).
2. Put tools into tool box.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

FLANGE ADAPTER ASSEMBLY REPAIR
Disassembly, Cleaning, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Material/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Cloth, abrasive (WP 0181, Item 3)
O-ring (WP 0150, Item 11)
Washer, lock (WP 0150, Item 9) Qty: 6

References

WP 0150

Equipment Condition

TRM shut down (TM 10-4930-370-10)

DISASSEMBLY

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

1. Remove coupling half (Figure 1, Item 4) from adapter flange (Figure 1, Item 2).
2. Remove gasket (Figure 1, Item 3) and chain (Figure 1, Item 5) from coupling half (Figure 1, Item 4).
3. Remove six bolts (Figure 1, Item 6), lockwashers (Figure 1, Item 7), washers (Figure 1, Item 8), and adapter flange (Figure 1, Item 2) from nozzle (Figure 1, Item 1). Discard lockwashers.
4. Remove O-ring (Figure 1, Item 9) from nozzle (Figure 1, Item 1). Discard O-ring.

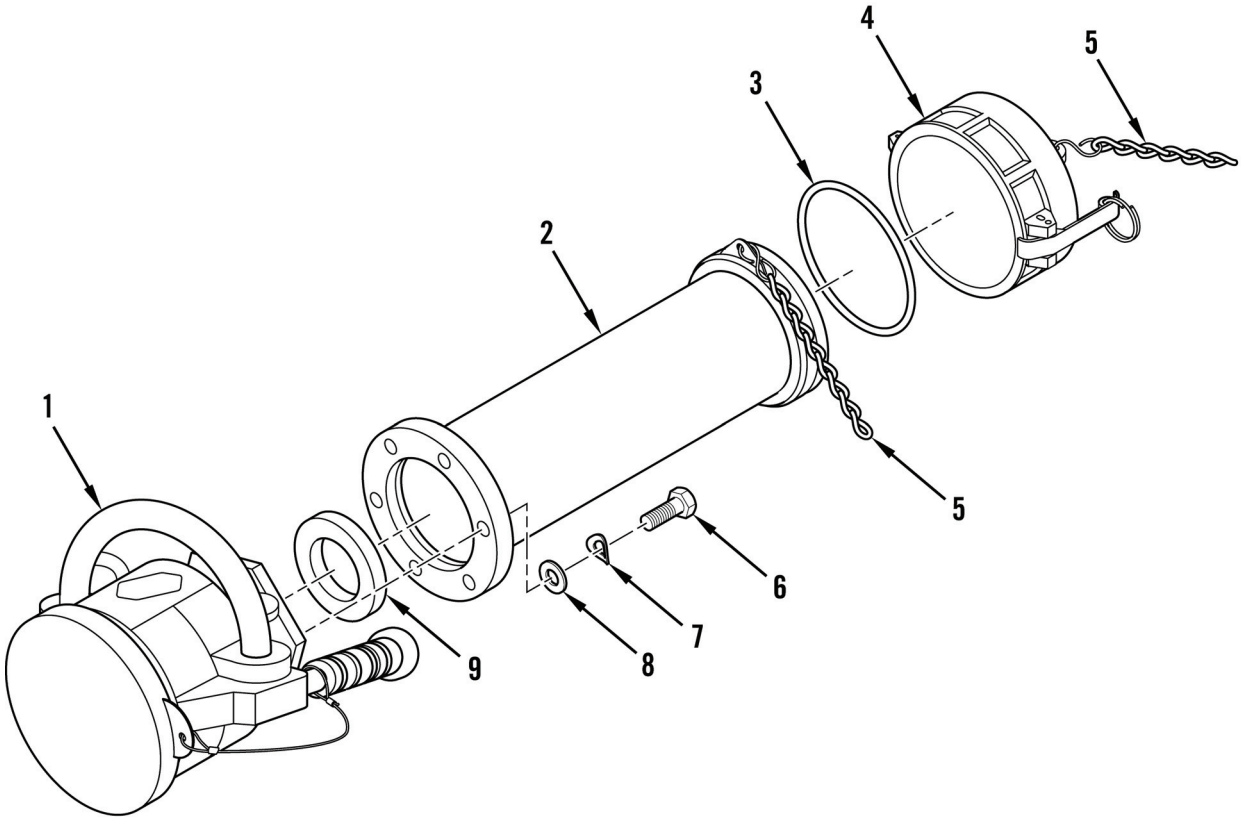
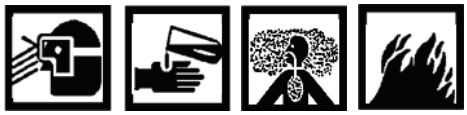


Figure 1. Flange Adapter Assembly.

END OF TASK

CLEANING

WARNING



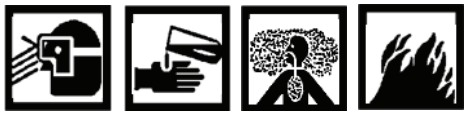
Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

1. Remove all buildup of dirt, oil and debris from all mating surfaces and clamping areas.
2. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
3. Allow parts to dry thoroughly.

END OF TASK

ASSEMBLY

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

1. Install new O-ring (Figure 1, Item 9) in nozzle (Figure 1, Item 1).
2. Install adapter flange (Figure 1, Item 2), six washers (Figure 1, Item 8), new lockwashers (Figure 1, Item 7), and bolts (Figure 1, Item 6) on nozzle (Figure 1, Item 1).
3. Install chain (Figure 1, Item 5) and gasket (Figure 1, Item 3) on coupling half (Figure 1, Item 4).
4. Install coupling half (Figure 1, Item 4) on adapter flange (Figure 1, Item 2).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

NOZZLE ASSEMBLY WITH VALVED UNISEX COUPLING REPAIR
Disassembly, Clean, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Compressing tool, splicing sleeve (WP 0182, Item 1)
Compression tool, multidiameter (WP 0182, Item 2)
Wrench, adjustable, automotive, 18 in. (WP 0182, Item 16)
Vise, machinist's, 4 in. (WP 0182, Item 13)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)

Materials/Parts - Continued

Cloth, cleaning (WP 0181, Item 4)
Sealing compound (WP 0181, Item 20)
Bushing, sleeve (WP 0151, Item 4)
Cap, bumper (WP 0151, Item 8)
Rope, wire (WP 0151, Item 12)
Seal, interface (WP 0151, Item 7)
Seal, interface (WP 0151, Item 10)
Swaging sleeve, wire rope (WP 0151, Item 13) Qty: 2

References

WP 0151

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

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DISASSEMBLY

1. Unscrew nozzle assembly (Figure 1, Item 1) from coupling assembly (Figure 1, Item 2).
2. Remove sleeve bushing (Figure 1, Item 5), wire rope (Figure 1, Item 3), and tag (Figure 1, Item 4).
3. Remove screw (Figure 1, Item 7) and grounding clamp (Figure 1, Item 6).

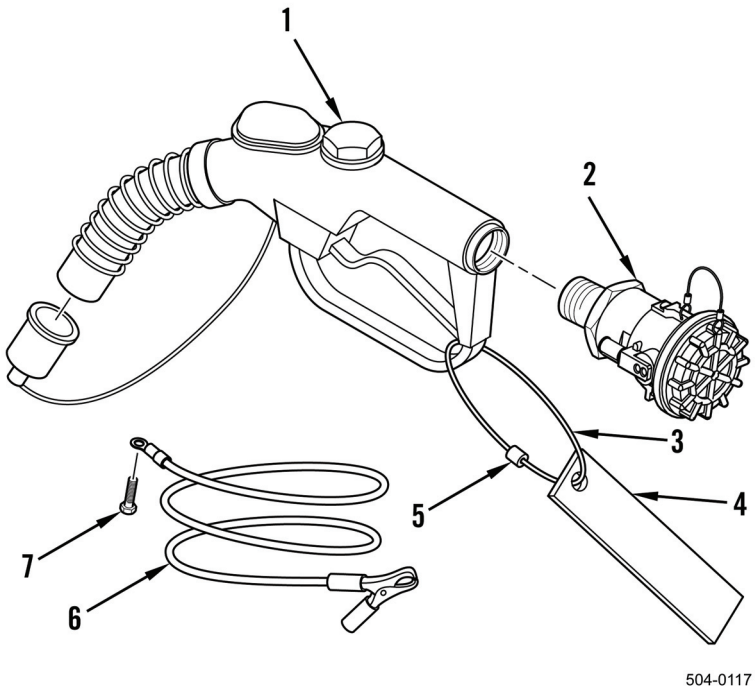


Figure 1. Nozzle Assembly and Valved Unisex Coupling Assembly.

4. Twist dust cap (Figure 2, Item 8) CCW to remove it from coupling assembly (Figure 2, Item 4).
5. Remove the dust cap (Figure 2, Item 8) or dust cap seal (Figure 2, Item 7).
   a. Cut and remove two sleeves (Figure 2, Item 2) and cable (Figure 2, Item 1) from coupling assembly (Figure 2, Item 4).
   b. Remove split ring (Figure 2, Item 3) and cable (Figure 2, Item 1) from coupling assembly (Figure 2, Item 4).
   c. Remove dust cap seal (Figure 2, Item 7) from dust cap (Figure 2, Item 8). Discard dust cap seal.

DISASSEMBLY – CONTINUED

6. Remove bumper (Figure 2, Item 6) from coupling assembly (Figure 2, Item 4) interface. Discard bumper.
7. Remove coupling seal (Figure 2, Item 5) from coupling assembly (Figure 2, Item 4) interface. Discard coupling seal.

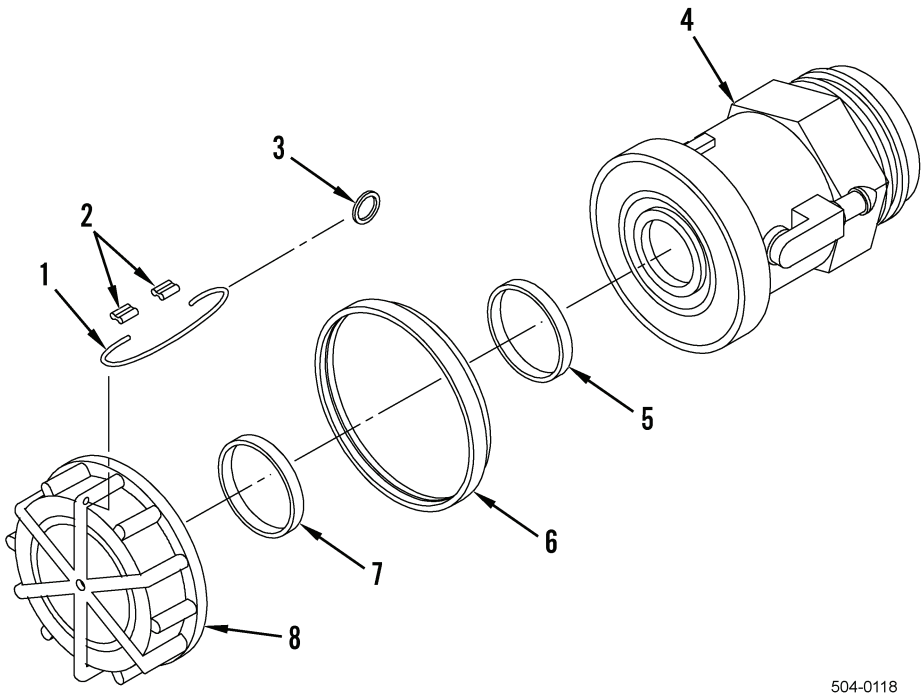
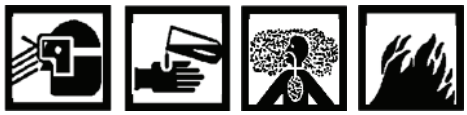


Figure 2. Valved Unisex Coupling Assembly.

END OF TASK

CLEAN

WARNING



Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

1. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
2. Allow parts to dry thoroughly.

END OF TASK

ASSEMBLY

1. Install new coupling seal (Figure 3, Item 5) in groove of coupling (Figure 3, Item 4) interface.
2. Install new bumper (Figure 3, Item 6) on coupling assembly (Figure 3, Item 4) interface with thin lip seal end facing away from coupling assembly (Figure 3, Item 4).
3. Install dust cap (Figure 3, Item 8) and dust cap seal (Figure 3, Item 7).
   a. Loop one end of new 18 in. (45.72 cm) cable (Figure 3, Item 1) through new sleeve (Figure 3, Item 2), dust cap (Figure 3, Item 8) and back through sleeve (Figure 3, Item 2).
   b. Crimp sleeve (Figure 3, Item 2).
   c. Loop other end of 18 in. (45.72 cm) cable (Figure 3, Item 1) through sleeve (Figure 3, Item 2), split ring (Figure 3, Item 3) and back through sleeve (Figure 3, Item 2).
   d. Crimp sleeve (Figure 3, Item 2).
   e. Install new seal (Figure 3, Item 7) on new dust cap (Figure 3, Item 8).
4. Twist dust cap (Figure 3, Item 8) CW to until it locks on coupling assembly (Figure 3, Item 4).

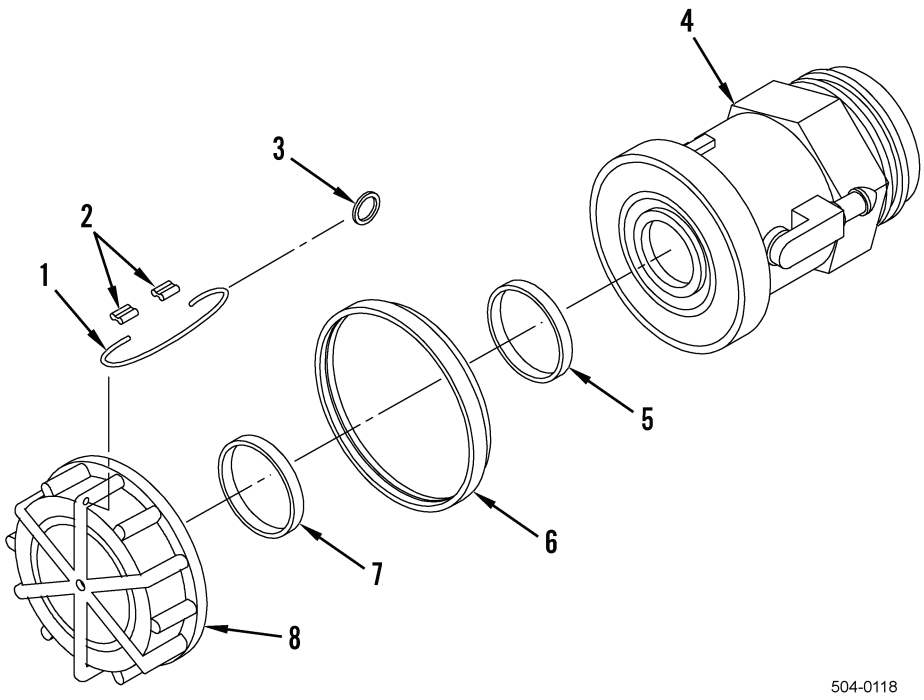


Figure 3. Valved Unisex Coupling Assembly.

ASSEMBLY – CONTINUED

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

5. Install grounding clamp (Figure 4, Item 6) and screw (Figure 4, Item 7).
6. Install tag (Figure 4, Item 4), wire rope (Figure 4, Item 3), and sleeve bushing (Figure 4, Item 5).
7. Install nozzle assembly (Figure 4, Item 1) on coupling assembly (Figure 4, Item 2).
   a. Apply sealing compound to threads of coupling (Figure 4, Item 2).
   b. Install and tighten nozzle assembly (Figure 4, Item 1) on coupling assembly (Figure 4, Item 2).

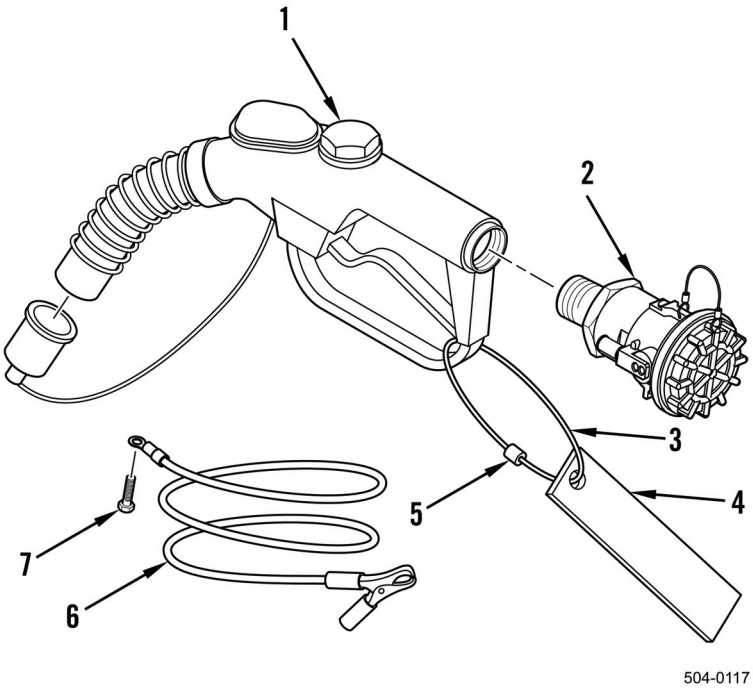


Figure 4. Nozzle Assembly and Valved Unisex Coupling Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

NATO ADAPTER ASSEMBLIES REPAIR
Disassembly, Clean, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Compression tool, multidiameter (WP 0182, Item 2)

Material/Parts

Bushing, sleeve (WP 0152, Item 9) Qty: 4
Bushing, sleeve (WP 0153, Item 9) Qty: 4

Material/Parts – Continued

Cleaning compound, solvent (WP 0181, Item 2)
Cloth, abrasive (WP 0181, Item 3)
Cloth, cleaning (WP 0181, Item 4)

References

WP 0152
WP 0153

Equipment Condition

TRM shut down (TM 10-4930-370-10)

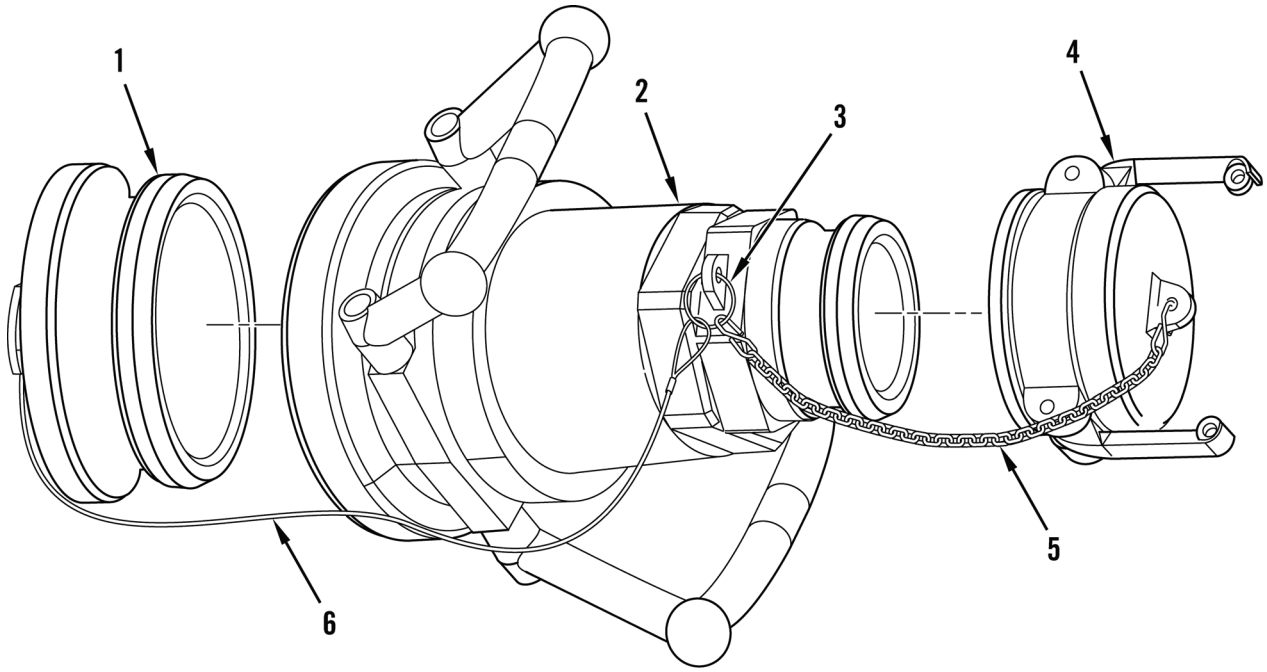
WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

DISASSEMBLY

Female NATO Adapter

1. Remove plug (Figure 1, Item 1) and dust cap (Figure 1, Item 4) from female NATO connector (Figure 1, Item 2).
2. Remove split ring (Figure 1, Item 3) from female NATO connector (Figure 1, Item 2).
3. Remove chain (Figure 1, Item 5) from dust cap (Figure 1, Item 4).
4. Remove lanyard (Figure 1, Item 6) from plug (Figure 1, Item 1).
5. Remove lanyard (Figure 1, Item 6) and chain (Figure 1, Item 5) from split ring (Figure 1, Item 3).



504-1991

Figure 1. Female NATO Adapter Assembly.

END OF TASK

CLEANING

Female NATO Adapter

WARNING

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1. Remove all buildup of dirt, oil and debris from all mating surfaces and clamping areas.
2. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
3. Allow parts to dry thoroughly.

END OF TASK

ASSEMBLY

Female NATO Adapter

1. Install chain (Figure 1, Item 5) on dust cap (Figure 1, Item 4).
2. Install lanyard (Figure 1, Item 6) on plug (Figure 1, Item 1).
3. Install chain (Figure 1, Item 5) and lanyard (Figure 1, Item 6) on split ring (Figure 1, Item 3).
4. Install split ring (Figure 1, Item 3) on female NATO connector (Figure 1, Item 2).
5. Install dust cap (Figure 1, Item 4) and plug (Figure 1, Item 1) on female NATO connector (Figure 1, Item 2).

END OF TASK

DISASSEMBLY

Male NATO Adapter

1. Remove cap (Figure 2, Item 1) by pulling and turning CCW.
2. Remove dust cap (Figure 2, Item 3) from male NATO connector (Figure 2, Item 2).
3. Remove chain (Figure 2, Item 4) from dust cap (Figure 2, Item 3) and male NATO connector (Figure 2, Item 2).
4. Remove lanyard (Figure 2, Item 6) from split ring (Figure 2, Item 5) on cap (Figure 2, Item 1) and split ring (Figure 2, Item 5) on male NATO connector (Figure 2, Item 2).
5. Remove split rings (Figure 2, Item 5) from cap (Figure 2, Item 1) and male NATO connector (Figure 2, Item 2).

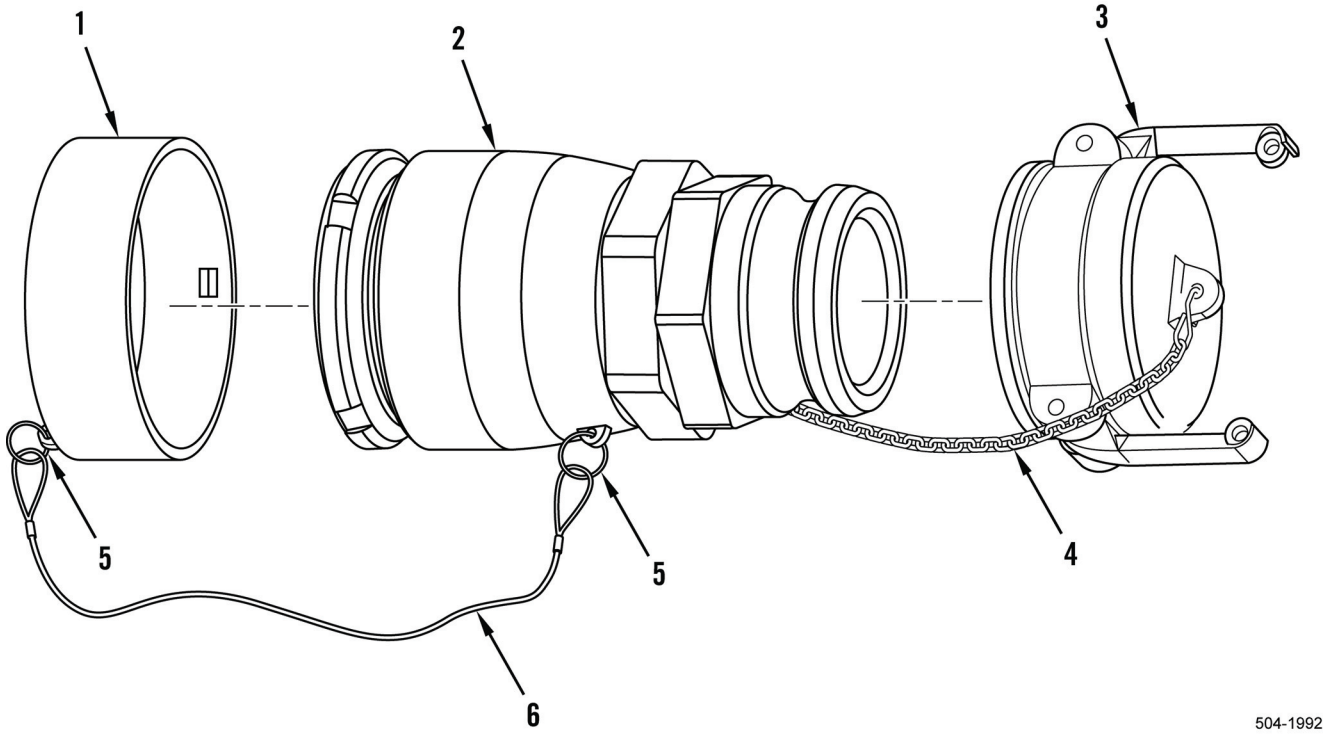

Figure 2. Male NATO Adapter Assembly.

END OF TASK

CLEANING

Male NATO Adapter

WARNING

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1. Remove all buildup of dirt, oil and debris from all mating surfaces and clamping areas.
2. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
3. Allow parts to dry thoroughly.

END OF TASK

ASSEMBLY

Male NATO Adapter

1. Install split rings (Figure 2, Item 5) on cap (Figure 2, Item 1) and male NATO connector (Figure 2, Item 2).
2. Install lanyard (Figure 2, Item 6) on split ring (Figure 2, Item 5) on cap (Figure 2, Item 1) and split ring (Figure 2, Item 5) on male NATO connector (Figure 2, Item 2).
3. Install chain (Figure 2, Item 4) on dust cap (Figure 2, Item 3) and male NATO connector (Figure 2, Item 2).
4. Install dust cap (Figure 2, Item 3) on male NATO connector (Figure 2, Item 2).
5. Install cap (Figure 2, Item 1) by pushing and turning CW so that tabs on cap mate with slots on male NATO connector (Figure 2, Item 2).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CABLE TRAY REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

Materials/Parts

Nut, self-locking, hexagon (WP 0155, Item 19)
Qty: 4

Personnel Required

Two

References

WP 0155

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

1. Remove all cables from cable tray (Figure 1, Item 1).
2. Remove four bolts (Figure 1, Item 5), flat washers (Figure 1, Item 4), and locknuts (Figure 1, Item 2) from cable tray (Figure 1, Item 1) and TRM frame (Figure 1, Item 3). Discard locknuts.

WARNING

Cable tray weighs 41 lb (18.6 kg) without cables stowed. A two person lift is required for removal and installation. Failure to comply may result in injury or death to personnel.

3. Remove cable tray (Figure 1, Item 1) from TRM frame (Figure 1, Item 3) with assistance.

END OF TASK

INSTALLATION

WARNING

Cable tray weighs 41 lb (18.6 kg) without cables stowed. A two person lift is required for removal and installation. Failure to comply may result in injury or death to personnel.

CAUTION

Use care when placing cable tray on frame to avoid pinching cables of cable clamp to frame. Failure to comply may result in damage to equipment.

1. Position cable tray (Figure 1, Item 1) on TRM frame (Figure 1, Item 3) with assistance.
2. Install four bolts (Figure 1, Item 5), flat washers (Figure 1, Item 4), and new locknuts (Figure 1, Item 2) in cable tray (Figure 1, Item 1) and TRM frame (Figure 1, Item 3).

INSTALLATION – CONTINUED

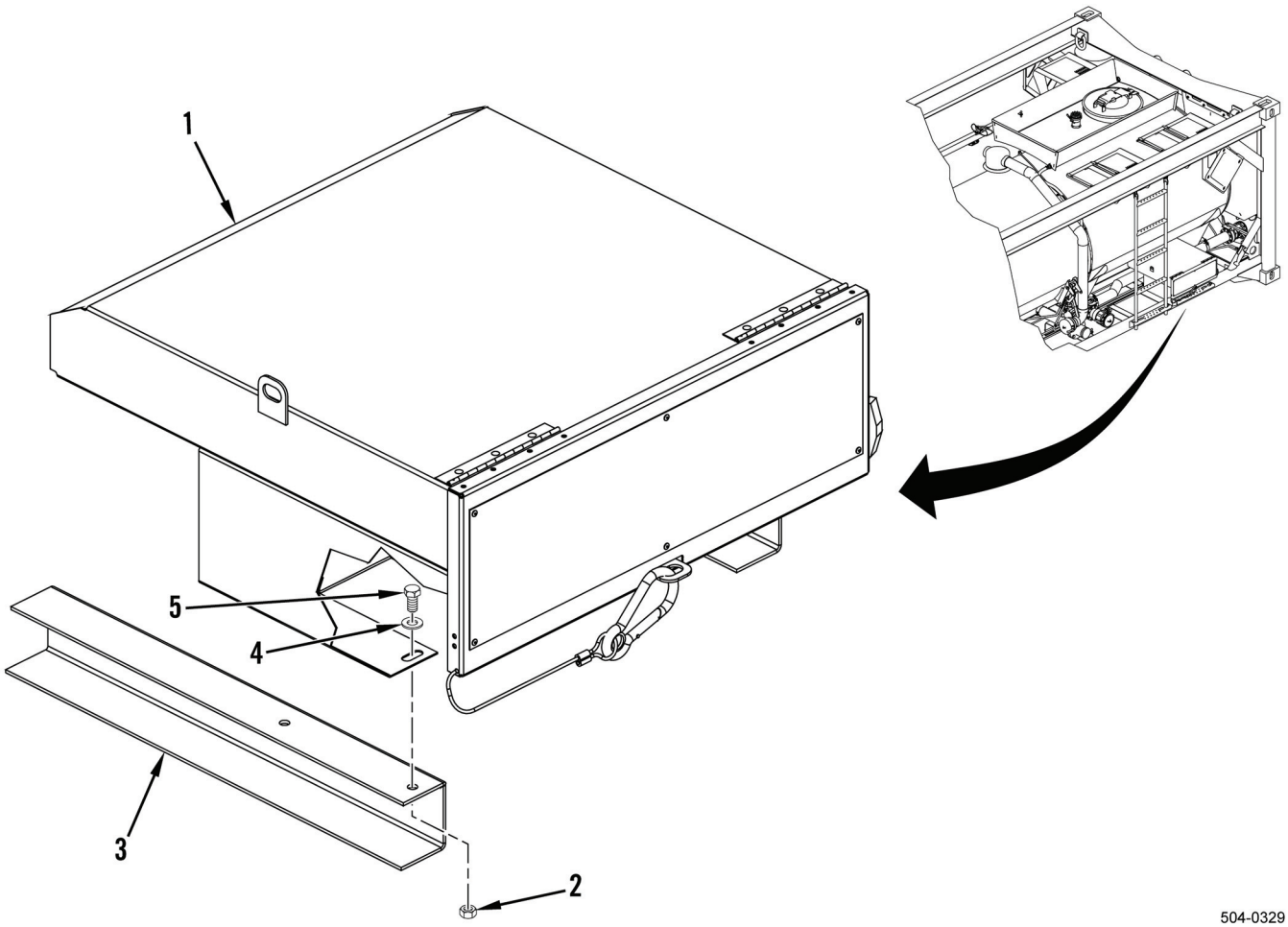


Figure 1. Cable Tray.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CABLE TRAY REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Drill, battery, rechargable (WP 0182, Item 6)
Drill set, twist (WP 0182, Item 7)
Tool kit, blind (WP 0182, Item 11)
Compressing tool, splicing sleeve (WP 0182, Item 1)
Compression tool, multidiameter (WP 0182, Item 2)

Materials/Parts

Bushing, sleeve (WP 0155, Item 4)
Rivet, blind (3/16") (WP 0155, Item 8) Qty: 4

Materials/Parts - Continued

Rivet, blind (1/8") (WP 0155, Item 10) Qty: 6
Rivet, solid (5/32") (WP 0155, Item 5) Qty: 6
Sleeve, wire rope (WP 0155, Item 7)
Tether, cable tray (WP 0155, Item 3)

References

WP 0155

Equipment Condition

Cable tray removed (WP 0090)

DISASSEMBLY

WARNING

Use eye protection when removing rivets. Failure to comply may result in an eye injury.

1. Remove two rivets (Figure 1, Item 4) and keeper (Figure 1, Item 3) from cable tray door (Figure 1, Item 2). Discard rivets.
2. Remove six rivets (Figure 1, Item 5) and data plate (Figure 1, Item 6) from cable tray door (Figure 1, Item 2). Discard rivets.
3. Remove bushing (Figure 1, Item 13) and snap clip and tether (Figure 1, Items 12 and 10) from cable tray door (Figure 1, Item 2). Discard bushing.
4. Remove wire rope sleeve (Figure 1, Item 11) from tether (Figure 1, Item 10), and remove snap clip (Figure 1, Item 12) from tether. Discard sleeve and tether.
5. Remove six rivets (Figure 1, Item 14) from two hinges (Figure 1, Item 1) and cable tray (Figure 1, Item 9). Discard rivets.
6. Remove cable tray door (Figure 1, Item 2) from cable tray (Figure 1, Item 9).
7. Remove two rivets (Figure 1, Item 7) and latch (Figure 1, Item 8) from cable tray (Figure 1, Item 9). Discard rivets.

END OF TASK

ASSEMBLY

1. Install latch (Figure 1, Item 8) on cable tray (Figure 1, Item 9) with two new rivets (Figure 1, Item 7).
2. Install two hinges (Figure 1, Item 1) of cable tray door (Figure 1, Item 2) on cable tray (Figure 1, Item 9) with six new rivets (Figure 1, Item 14).
3. Loop new tether (Figure 1, Item 10) around snap clip (Figure 1, Item 12), and install new wire rope sleeve (Figure 1, Item 11) onto tether (Figure 1, Item 10).
4. Install snap clip and tether (Figure 1, Items 12 and 10) on cable tray door (Figure 1, Item 2) with new bushing (Figure 1, Item 13).
5. Install data plate (Figure 1, Item 6) on cable tray door (Figure 1, Item 2) with six new rivets (Figure 1, Item 5).
6. Install keeper (Figure 1, Item 3) on cable tray door (Figure 1, Item 2) with two new rivets (Figure 1, Item 4).

ASSEMBLY – CONTINUED

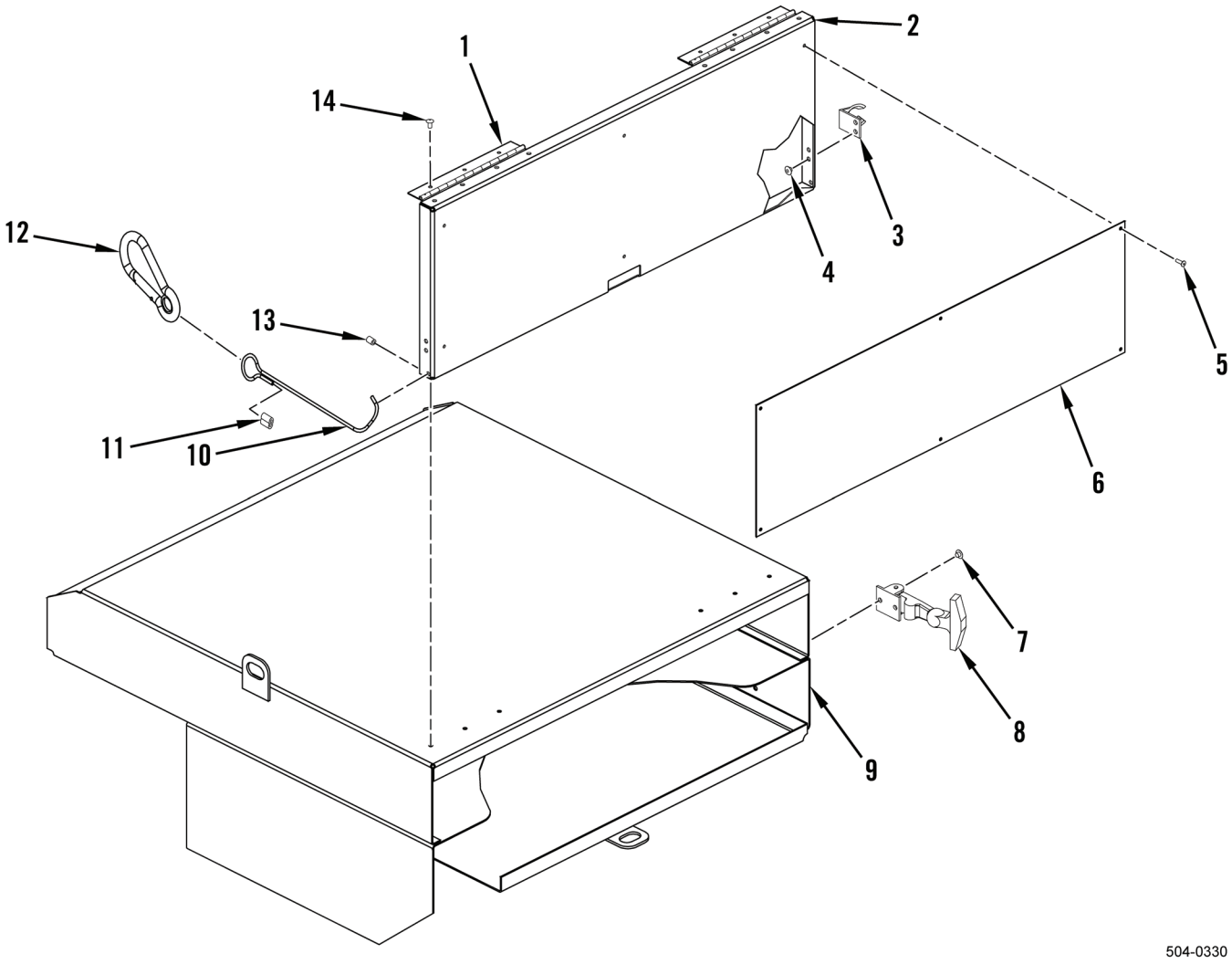


Figure 1. Cable Tray.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cable tray (WP 0090).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

REMOTE CONTROL SWITCH BOX ASSEMBLY REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

References

WP 0156

Materials/Parts

Wire marker books (WP 0181, Item 23)
Nut, self-locking, hexagon (WP 0156, Item 2)

Equipment Condition

TRM shut down (TM 10-4930-370-10)

DISASSEMBLY

Remove Cover

1. Remove two screws (Figure 1, Item 3), nut (Figure 1, Item 4), cover (Figure 1, Item 5), and gasket (Figure 1, Item 6) from conduit body (Figure 1, Item 15).
2. Inspect gasket (Figure 1, Item 6) for damage, and replace gasket if damaged.
3. Lift guard (Figure 1, Item 8) slightly from conduit body (Figure 1, Item 15) to access nut (Figure 1, Item 11).

NOTE

Tag wires prior to removal to aid in installation.

4. Remove screw (Figure 1, Item 7), nut (Figure 1, Item 11), and wire of cable assembly (Figure 1, Item 12) from guard (Figure 1, Item 8).
5. Remove gasket (Figure 1, Item 18) from conduit body (Figure 1, Item 15) or guard (Figure 1, Item 8).
6. Inspect gasket (Figure 1, Item 18) for damage, and replace gasket if damaged.

END OF TASK

Remove Magnet, Data Plate, Guard, and Plug

1. Remove Cover (Remove Cover task in this WP).
2. Remove bolt (Figure 1, Item 10), locknut (Figure 1, Item 1), flat washer (Figure 1, Item 2), data plate (Figure 1, Item 9), and magnet (Figure 1, Item 19) from guard (Figure 1, Item 8). Discard locknut.
3. Remove plug (Figure 1, Item 16) from conduit body (Figure 1, Item 15).

END OF TASK

Remove Toggle Switch

1. Remove Cover (Remove Cover task in this WP).

NOTE

The toggle switch has a second nut installed on the shaft. It does not need to be removed.

2. Lift toggle switch (Figure 1, Item 17) from conduit body (Figure 1, Item 15) to access wires.

NOTE

Tag wires prior to removal to aid in installation.

3. Remove two screws (Figure 1, Item 13) and two wires of cable assembly (Figure 1, Item 12) from toggle switch (Figure 1, Item 17).

END OF TASK

DISASSEMBLY – CONTINUED

Remove Cable Assembly

1. Remove Toggle Switch (Remove Toggle Switch task in this WP).
2. Remove conduit fitting (Figure 1, Item 14) and cable assembly (Figure 1, Item 12) from conduit body (Figure 1, Item 15).

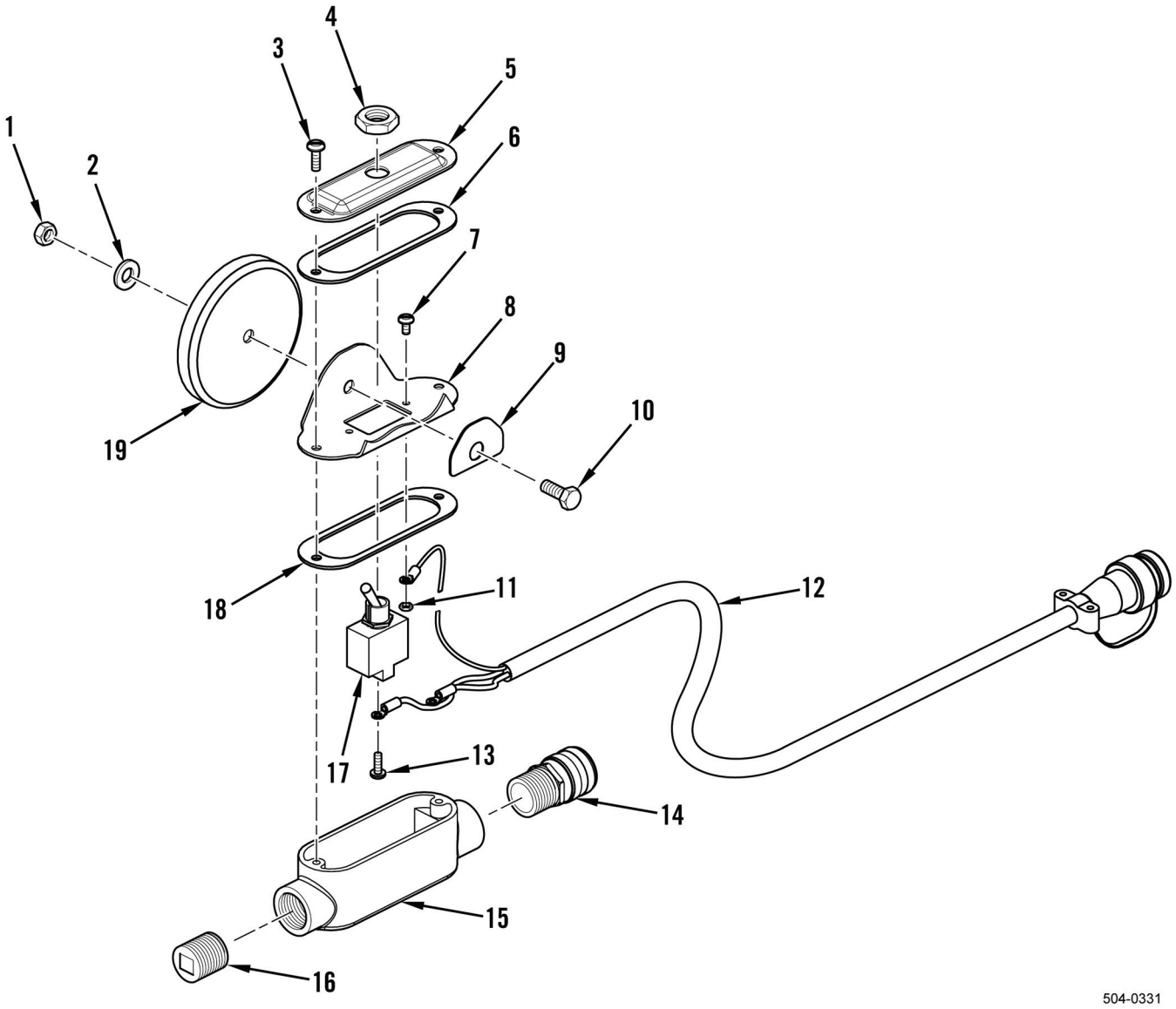


Figure 1. Remote Control Switch Box Assembly.

END OF TASK

ASSEMBLY

Install Cable Assembly

1. Feed wires of cable assembly (Figure 2, Item 12) into conduit body (Figure 2, Item 15), and install conduit fitting (Figure 2, Item 14) and cable assembly onto conduit body.
2. Install Toggle Switch (Install Toggle Switch task in this WP).

END OF TASK

Install Toggle Switch

1. Install two wires of cable assembly (Figure 2, Item 12) onto toggle switch (Figure 2, Item 17) with two screws (Figure 2, Item 13).
2. Position toggle switch (Figure 2, Item 17) into conduit body (Figure 2, Item 15).
3. Install Cover (Install Cover task in this WP).

END OF TASK

Install Magnet, Data Plate, Guard, and Plug

1. Install plug (Figure 2, Item 16) onto conduit body (Figure 2, Item 15).
2. Install data plate (Figure 2, Item 9) and magnet (Figure 2, Item 19) onto guard (Figure 2, Item 8) with bolt (Figure 2, Item 10), flat washer (Figure 2, Item 2), and new locknut (Figure 2, Item 1).
3. Install Cover (Install Cover task in this WP).

END OF TASK

Install Cover

1. Position gasket (Figure 2, Item 18) on conduit body (Figure 2, Item 15).
2. Install screw (Figure 2, Item 7), nut (Figure 2, Item 11), and wire (Figure 2, Item 12) onto guard (Figure 2, Item 8).
3. Position guard (Figure 2, Item 8) on conduit body (Figure 2, Item 15).
4. Install cover (Figure 2, Item 5) and gasket (Figure 2, Item 6) onto conduit body (Figure 2, Item 15) with two screws (Figure 2, Item 3) and nut (Figure 2, Item 4).

ASSEMBLY – CONTINUED

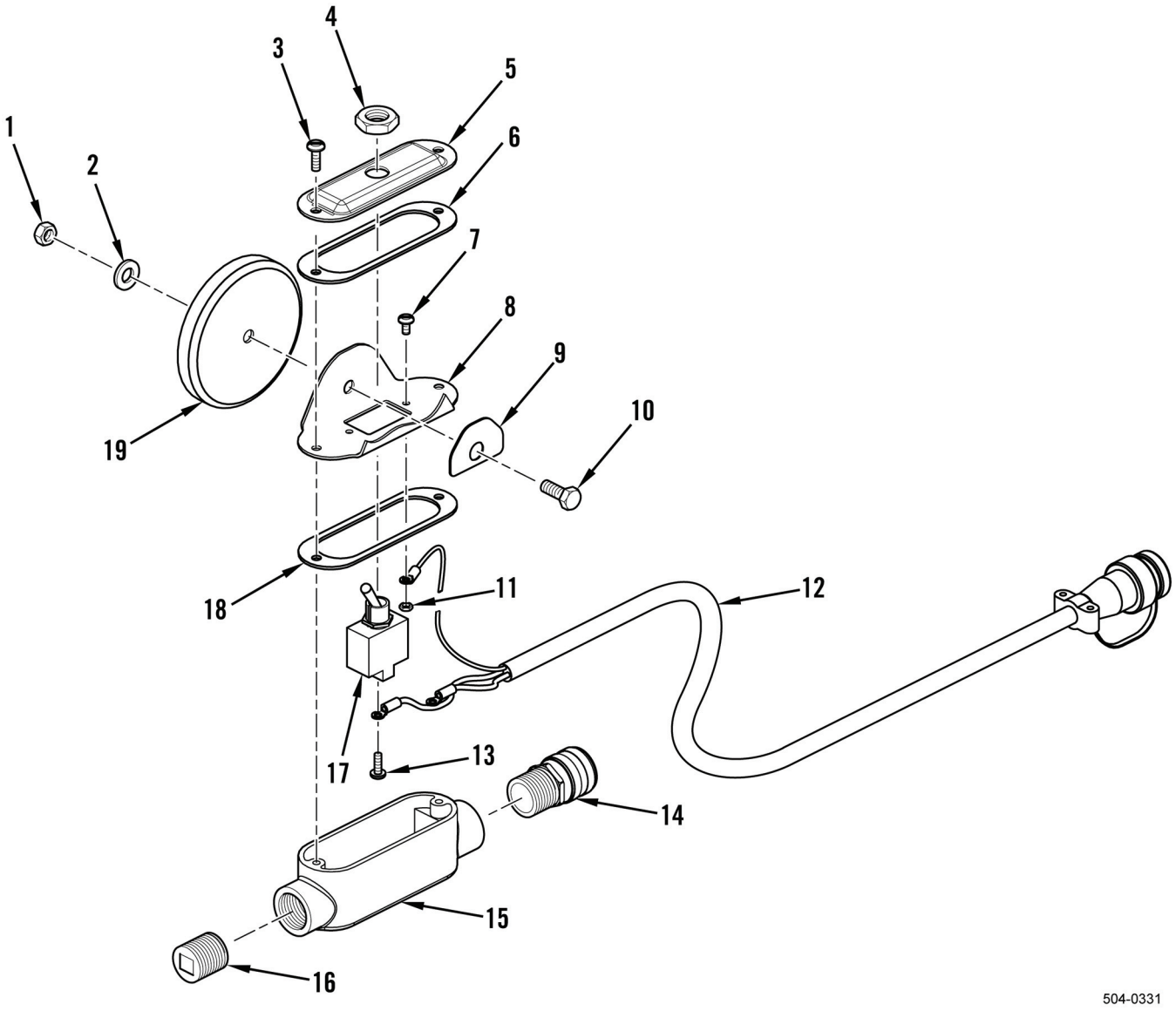


Figure 2. Remote Control Switch Box Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

BOTTOM LOAD VALVE PIPING ASSEMBLY REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)

Materials/Parts

Petrolatum, technical (WP 0181, Item 15)
Gasket, slide (WP 0157, Item 32)
Gasket, slide (WP 0157, Item 37)
Nut, hexagon (WP 0157, Item 31) Qty: 2
Nut, self-locking, hexagon (WP 0157, Item 41) Qty: 4

Personnel Required

Two

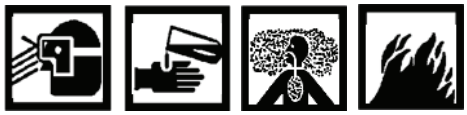
References

WP 0157

Equipment Condition

TRM drained (TM 10-4930-370-10)
TRM mounted on PLS trailer (TM 10-4930-370-10)

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

DISASSEMBLY

1. Place drip pan under connections.
2. Remove two locknuts (Figure 1, Item 5), bolts (Figure 1, Item 1), coupling (Figure 1, Item 2), and slide gasket (Figure 1, Item 3) from inlet piping (Figure 1, Item 4). Discard locknuts and slide gasket.

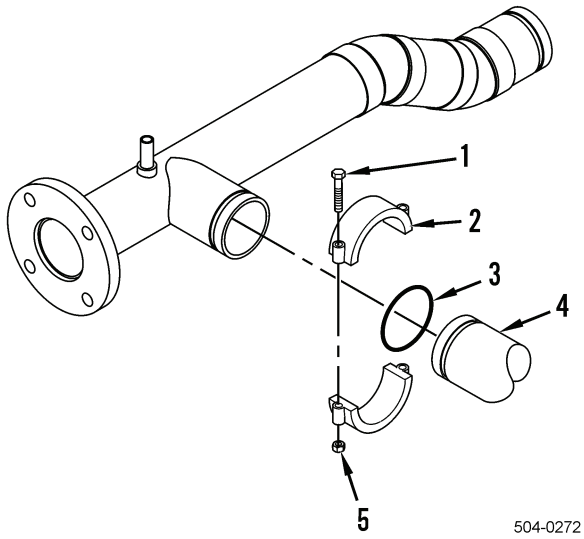


Figure 1. Inlet Piping Assembly.

3. Remove two locknuts (Figure 2, Item 5), bolts (Figure 2, Item 2), and coupling (Figure 2, Item 6) from discharge piping assembly (Figure 2, Item 4) and V2 valve (Figure 2, Item 1). Discard locknuts.
4. Remove slide gasket (Figure 2, Item 3) from discharge piping assembly (Figure 2, Item 4) and V2 valve (Figure 2, Item 1). Discard slide gasket.

DISASSEMBLY – CONTINUED

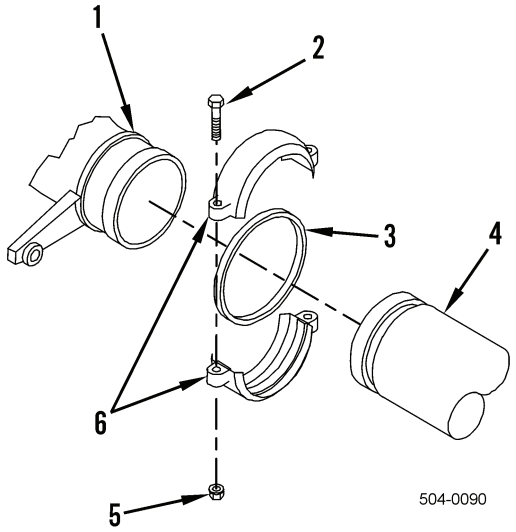


Figure 2. Bottom Load Piping Connection.

5. Disconnect line (Figure 3, Item 1) from pipe nipple (Figure 3, Item 14).
6. Remove two locknuts (Figure 3, Item 5), bolts (Figure 3, Item 3), strap (Figure 3, Item 4), and bottom load piping (Figure 3, Item 6) from strap bracket (Figure 3, Item 2). Discard locknuts.
7. Remove precheck valve (Figure 3, Item 13) and nipple (Figure 3, Item 12) from bottom load piping (Figure 3, Item 6).

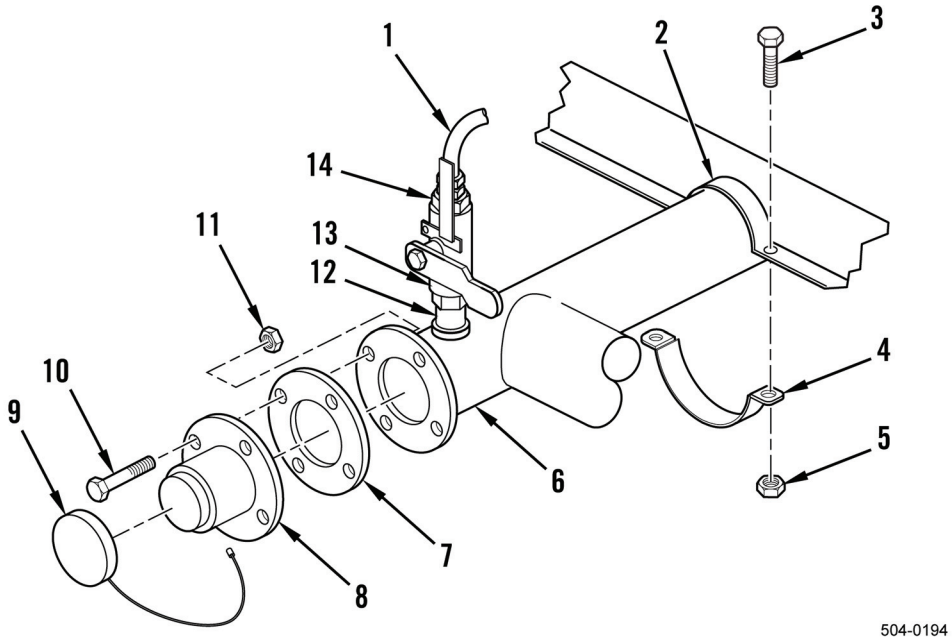


Figure 3. Bottom Load Valve Piping Assembly.

8. Remove cover (Figure 3, Item 9), four nuts (Figure 3, Item 11), four bolts (Figure 3, Item 10), coupling half (Figure 3, Item 8), and slide gasket (Figure 3, Item 7).

END OF TASK

ASSEMBLY

1. Install gasket (Figure 4, Item 7), coupling half (Figure 4, Item 8), four bolts (Figure 4, Item 10), four nuts (Figure 4, Item 11), and cover (Figure 4, Item 9).
2. Install precheck valve (Figure 4, Item 13) and nipple (Figure 4, Item 12) on bottom load piping (Figure 4, Item 6).
3. Install pipe nipple (Figure 4, Item 14) and line (Figure 4, Item 1).
4. Install bottom load piping (Figure 4, Item 6), strap (Figure 4, Item 4), two bolts (Figure 4, Item 3), and locknuts (Figure 4, Item 5) on strap bracket (Figure 4, Item 2).

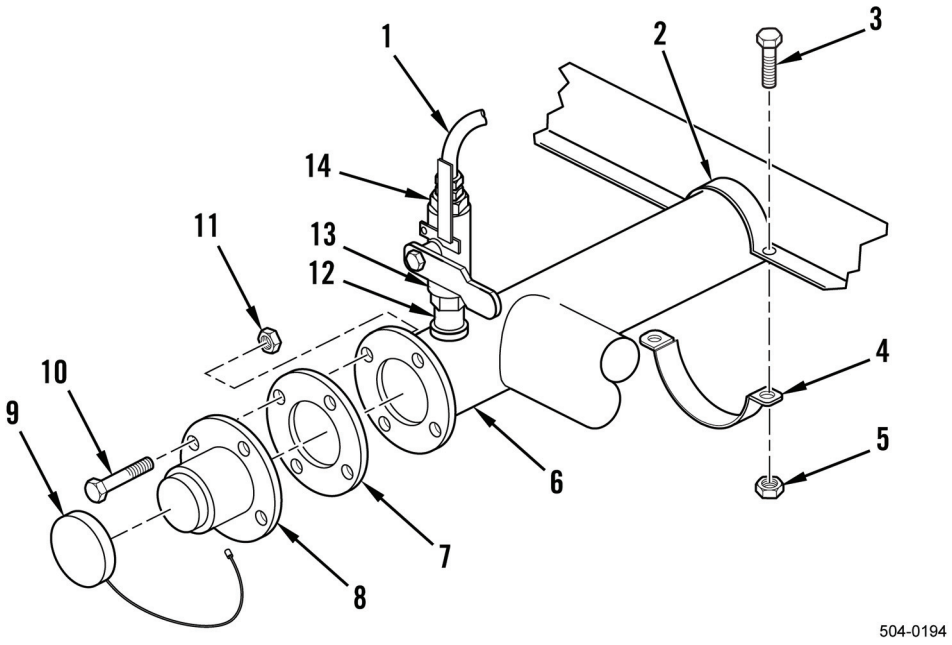


Figure 4. Bottom Load Valve Piping Assembly.

ASSEMBLY – CONTINUED

5. Lubricate inner surface of rigid couplings (Figure 5, Item 6) lightly with petrolatum.
6. Install new slide gasket (Figure 5, Item 3) on bottom load valve (Figure 5, Item 1).
7. Install coupling (Figure 5, Item 6), two bolts (Figure 5, Item 2) and new locknuts (Figure 5, Item 5) on bottom load valve (Figure 5, Item 1) and valve piping assembly (Figure 5, Item 4).

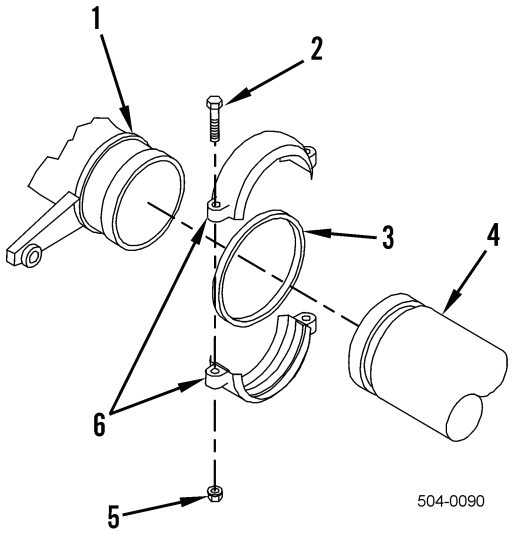


Figure 5. Bottom Load Piping Connection.

8. Move new slide gasket (Figure 6, Item 3) into position and install coupling (Figure 6, Item 2), two bolts (Figure 6, Item 1), and new locknuts (Figure 6, Item 5) onto inlet piping assembly (Figure 6, Item 4).

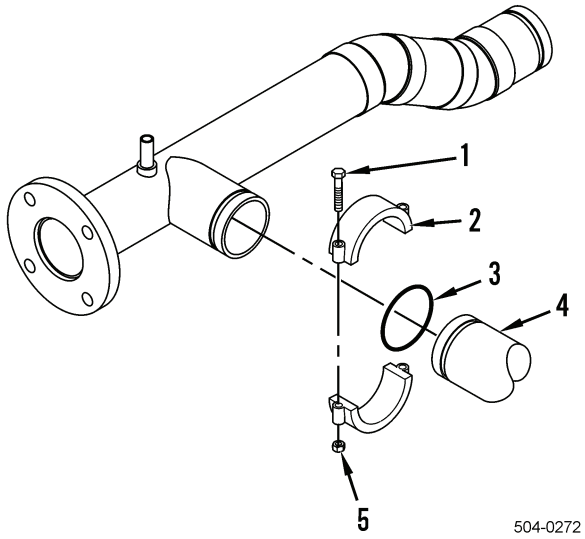


Figure 6. Inlet Piping Assembly.

9. Connect line (Figure 4, Item 1) to pipe nipple (Figure 4, Item 9).

ASSEMBLY – CONTINUED

10. Remove drip pans and dispose of contents IAW local SOP.
11. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

PORT B VACUUM BREAKER REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Fire extinguisher (TM 10-4930-370-10)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Wrench, pipe, 10 in. (WP 0182, Item 17)

Materials/Parts

Sealing compound (WP 0181, Item 20)

References

WP 0157

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Make sure V5 discharge Port B control valve is closed (TM 10-4930-370-10).
2. Place drip pan under Port B (Figure 1, Item 1).
3. Make sure fuel is drained from Port B vacuum breaker (VB1) (TM 10-4930-370-10).
4. Remove vacuum breaker (VB1) valve (Figure 1, Item 3) from pipe (Figure 1, Item 2).
5. Remove elbow (Figure 1, Item 4) from vacuum breaker (VB1) valve (Figure 1, Item 3).
6. Remove pipe (Figure 1, Item 2) from Port B (Figure 1, Item 1).

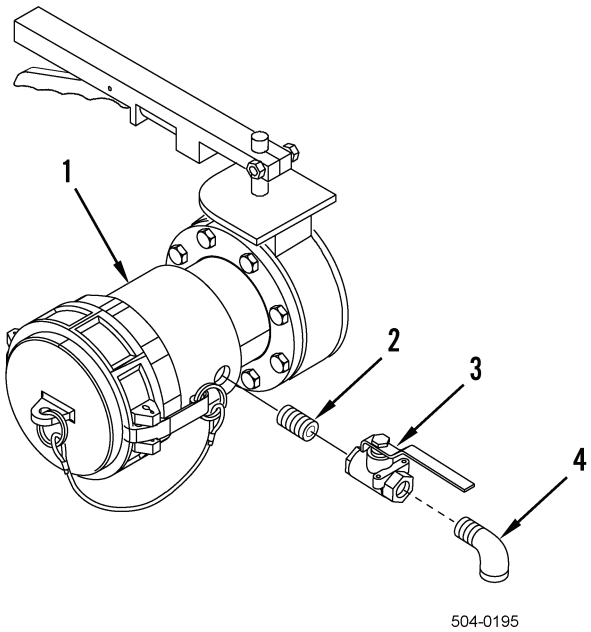


Figure 1. Port B Vacuum Breaker (VB1).

END OF TASK

INSTALLATION

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

1. Apply sealing compound on threads and install pipe (Figure 1, Item 2) on Port B (Figure 1, Item 1).
2. Apply sealing compound on threads and install vacuum breaker (VB1) valve (Figure 1, Item 3) on pipe (Figure 1, Item 2).
3. Apply sealing compound on threads and install elbow (Figure 1, Item 4) on vacuum breaker (VB1) valve (Figure 1, Item 3).
4. Remove drip pan and dispose of contents IAW local SOP.
5. Recirculate fuel and check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

PRECHECK VALVE REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Wrench, pipe, 10 in. (WP 0182, Item 17)

Materials/Parts

Nut, Self-Locking, Hexagon (WP 0147, Item 10)
Qty: 2
Nut, Self-Locking, Hexagon (WP 0157, Item 41)

References

WP 0122
WP 0157

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

REMOVAL

Precheck Valve

1. Make sure V2 valve is closed (TM 10-4930-370-10).
2. Place suitable container under precheck valve (Figure 1, Item 3).
3. Remove two screws (Figure 1, Item 6) securing ID plate (Figure 1, Item 7) from precheck valve (Figure 1, Item 3).
4. Remove ID plate (Figure 1, Item 7).
5. Disconnect line fitting (Figure 1, Item 1) from nipple (Figure 1, Item 2) and precheck valve (Figure 1, Item 3).
6. Open precheck valve slightly to relieve pressure.
7. Remove precheck valve (Figure 1, Item 3) and adapter (Figure 1, Item 5) from bottom load piping (Figure 1, Item 4).
8. Remove nipple (Figure 1, Item 2) from precheck valve (Figure 1, Item 3).
9. Remove adapter (Figure 1, Item 5) from precheck valve (Figure 1, Item 3).

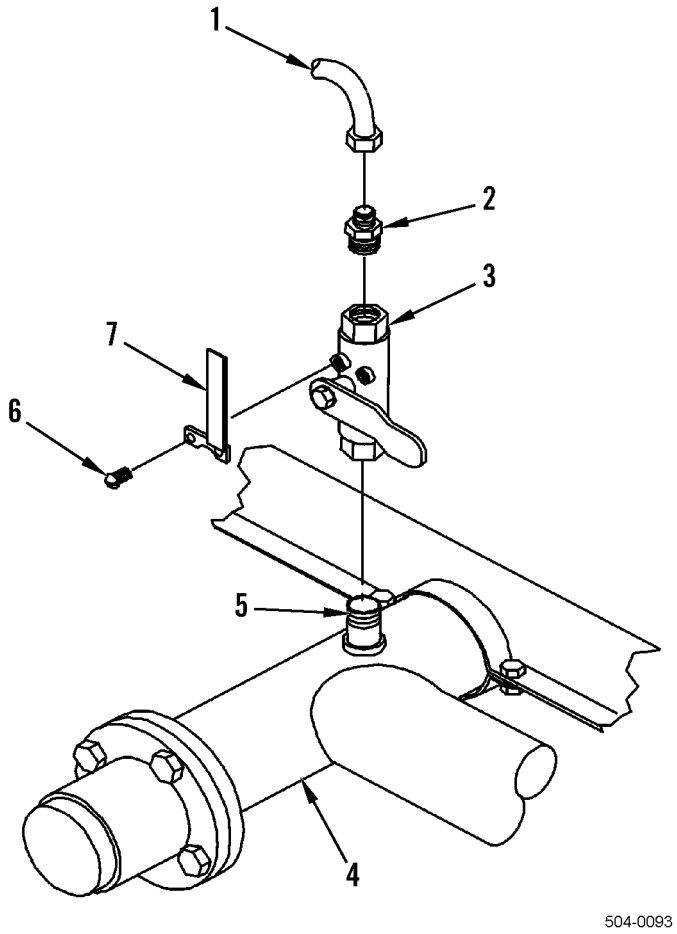


Figure 1. Precheck Valve.

END OF TASK

REMOVAL – CONTINUED

Line and Fittings

1. Make sure V2 valve is closed (TM 10-4930-370-10).
2. Place suitable container under precheck valve (Figure 2, Item 9).
3. Disconnect nut (Figure 2, Item 13) from nipple (Figure 2, Item 10) on precheck valve (Figure 2, Item 9).
4. Disconnect nut (Figure 2, Item 3) from elbow (Figure 2, Item 6) on tank (Figure 2, Item 7).

NOTE

Two studs on the tank are also used to secure two additional P-clamps attached to a hose. The additional P-clamps only need to be removed from the studs to access the two P-clamps attached to the line being removed.

5. Remove three locknuts (Figure 2, Item 1) securing line (Figure 2, Item 8) and P-clamps (Figure 2, Item 2) to tank (Figure 2, Item 7). Discard locknuts.
6. Remove line (Figure 2, Item 8) from tank (Figure 2, Item 7).
7. Mark orientation of elbow fitting (Figure 2, Item 6) and remove elbow fitting from tank (Figure 2, Item 7).
8. Remove nipple (Figure 2, Item 10) from precheck valve (Figure 2, Item 9).
9. Remove P-clamps (Figure 2, Item 2) from line (Figure 2, Item 8) if replacing line with a new line.
10. Discard line (Figure 2, Item 8) and fitting parts (Figure 2, Items 3, 4, 5, 6, 10, 11, 12, and 13) if replacing line with a new line.

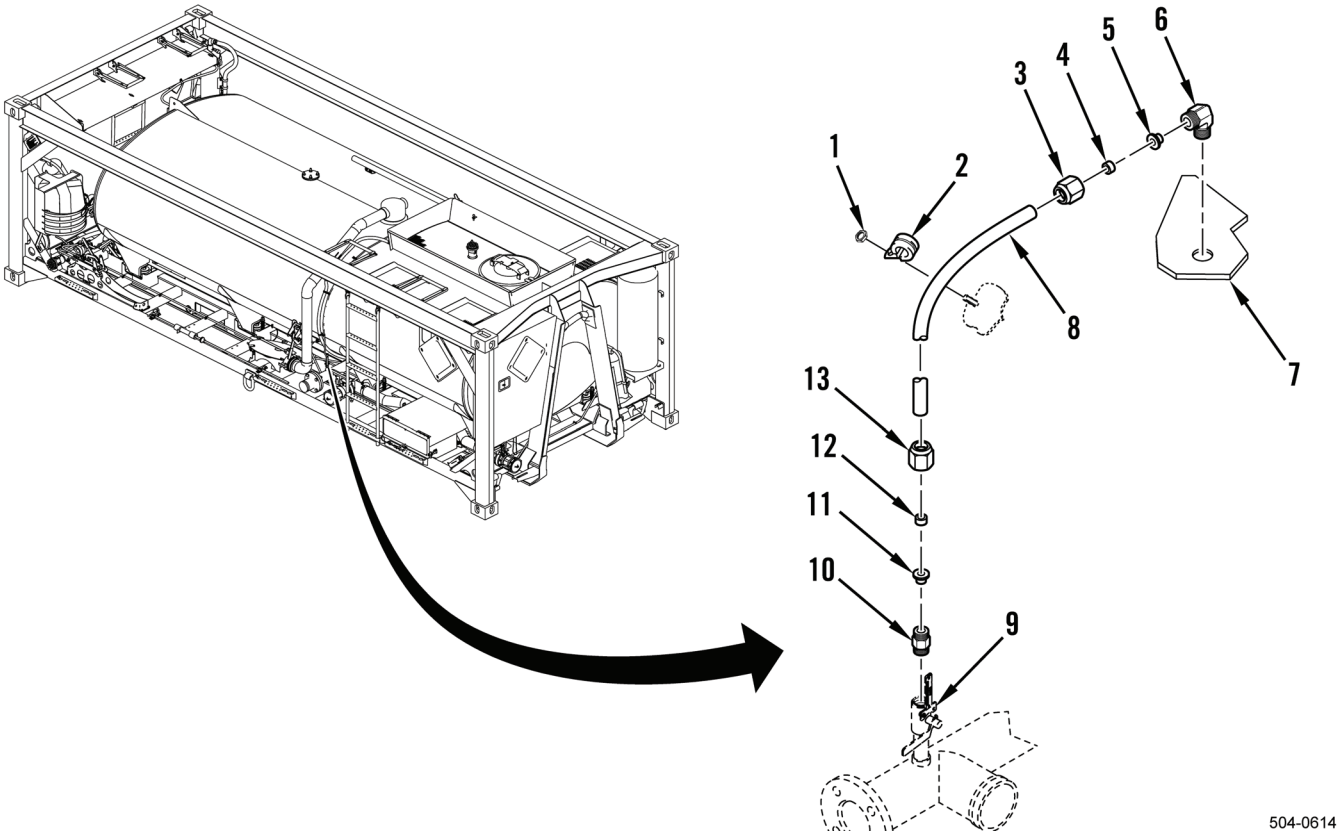


Figure 2. Line and Fittings

END OF TASK

INSTALLATION

Line and Fittings

CAUTION

Do not apply primer and sealer to compression threads. Only apply primer and sealer to the male pipe threads of the fittings that will install into the precheck valve and tank and the female pipe threads on the precheck valve and tank.

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122).

NOTE

Steps 2 through 4 only need to be performed if using a new line.

2. Install three P-clamps (Figure 3, Item 2) onto line (Figure 3, Item 8) if using a new line.
3. Install two nuts (Figure 3, Items 3 and 13) onto two line (Figure 3, Item 8) ends if using a new line.
4. Install two parts of compression ring (Figure 3, Items 4, 5, 11, and 12) on each line (Figure 3, Item 8) end if using a new line.
5. Install nipple (Figure 3, Item 10) into precheck valve (Figure 3, Item 9).
6. Install elbow fitting (Figure 3, Item 6) into tank (Figure 3, Item 7).
7. Position line (Figure 3, Item 8) and three P-clamps (Figure 3, Item 2) onto tank (Figure 3, Item 7).

NOTE

Two studs on the tank are also used to secure two additional P-clamps attached to hose. The additional P-clamps need to be positioned on the studs before the new locknuts are tightened.

8. Install three new locknuts (Figure 3, Item 1) onto three P-clamps (Figure 3, Item 2) hand tight.
9. Connect nut (Figure 3, Item 3) onto elbow (Figure 3, Item 6).
10. Connect nut (Figure 3, Item 13) onto nipple (Figure 3, Item 10) and precheck valve (Figure 3, Item 9).
11. Tighten three locknuts (Figure 3, Item 1).
12. Remove suitable container and dispose of contents IAW local SOP.
13. Check for leaks.

INSTALLATION – CONTINUED

Line and Fittings – Continued

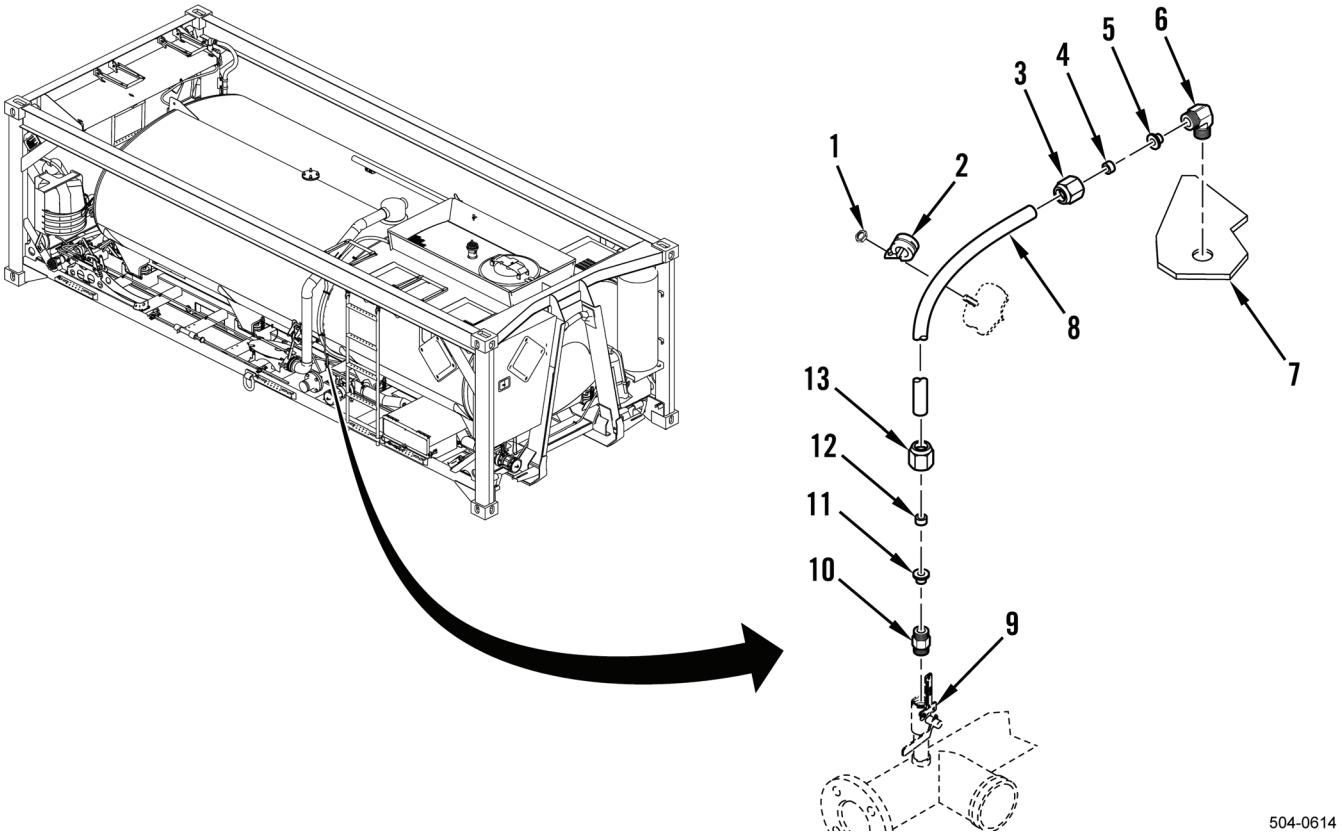


Figure 3. Line and Fittings

END OF TASK

Precheck Valve

1. Prepare all male and female pipe fitting threads with primer and sealer (WP 0122)

INSTALLATION – CONTINUED

Precheck Valve – Continued

2. Install adapter (Figure 4, Item 5) on precheck valve (Figure 4, Item 3).
3. Install nipple (Figure 4, Item 2) in precheck valve (Figure 4, Item 3).
4. Install precheck valve (Figure 4, Item 3) on bottom load piping (Figure 4, Item 4).
5. Connect line fitting (Figure 4, Item 1) to pipe nipple (Figure 4, Item 2).
6. Position ID plate (Figure 4, Item 7) on precheck valve (Figure 4, Item 3).
7. Install two screws (Figure 4, Item 6) and ID plate (Figure 4, Item 7) to precheck valve (Figure 4, Item 3).
8. Remove suitable container and dispose of contents IAW local SOP.
9. Check for leaks.

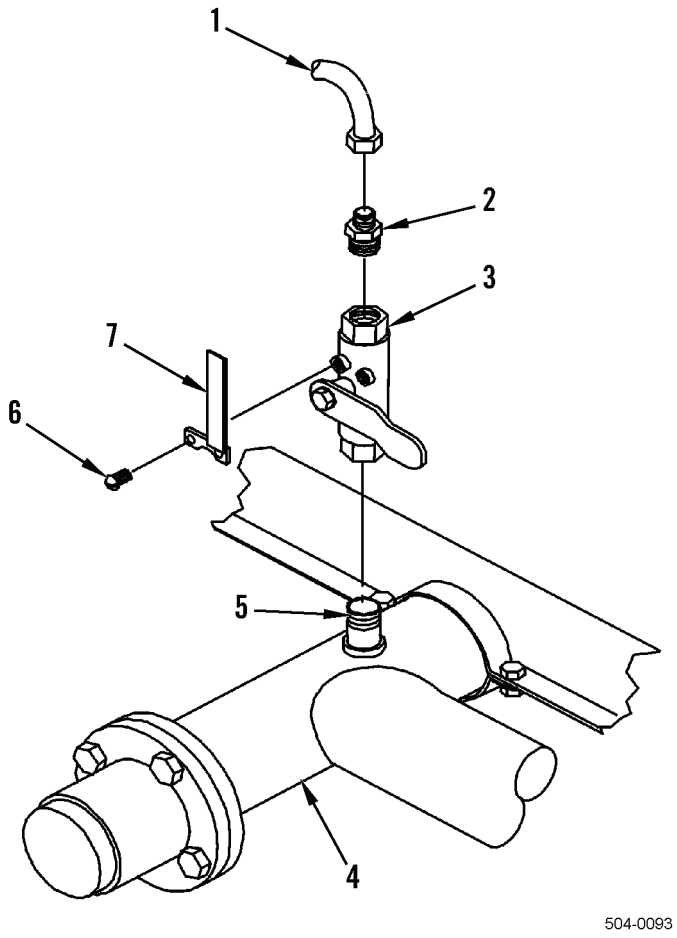


Figure 4. Precheck Valve.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

QUICK DISCONNECT COUPLING HALF REPLACEMENT
Removal, Cleaning, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)

Materials/Parts

Gasket, non-asbestos (WP 0157, Item 13)
Nut, self-locking, hexagon (WP 0157, Item 4)
Qty: 4

References

WP 0157

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)

WARNING

Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Place drip pan under quick disconnect coupling half (Figure 1, Item 4).
2. Remove vapor recovery dust cap and open V2 valve.
3. Remove four locknuts (Figure 1, Item 1) from bolts (Figure 1, Item 5) on bottom load piping (Figure 1, Item 2). Discard locknuts.
4. Remove four bolts (Figure 1, Item 5) from quick disconnect coupling half (Figure 1, Item 4) and bottom load piping (Figure 1, Item 2).
5. Remove quick disconnect coupling half (Figure 1, Item 4) from bottom load piping (Figure 1, Item 2).
6. Remove gasket (Figure 1, Item 3) and discard.

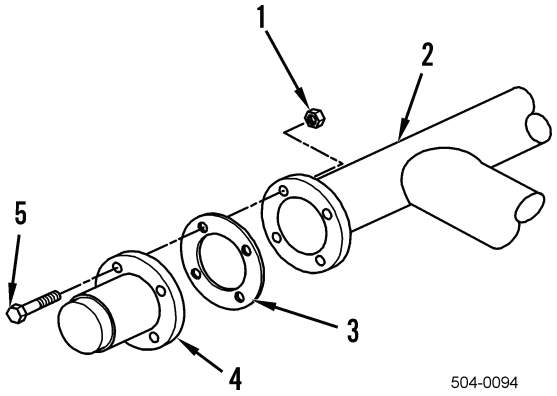


Figure 1. Quick Disconnect Coupling Half.

END OF TASK

CLEANING

WARNING

Wear goggles to prevent foreign objects from entering your eyes. Failure to comply may result in an eye injury.

1. Remove gasket debris from mating surfaces.
2. Clean all metallic parts with cleaning cloth and solvent cleaning compound.
3. Allow parts to dry thoroughly.

END OF TASK

INSTALLATION

1. Position new gasket (Figure 1, Item 3) on mating surface of bottom load piping (Figure 1, Item 2).
2. Install quick disconnect coupling half (Figure 1, Item 4) on bottom load piping (Figure 1, Item 2).
3. Install bolts (Figure 1, Item 5) in quick disconnect coupling half (Figure 1, Item 4) and bottom load piping (Figure 1, Item 2).
4. Install four new locknuts (Figure 1, Item 1) on bolts (Figure 1, Item 5). Torque to 30 lb-ft (40.7 Nm).
5. Close V2 valve and install vapor recovery dust cap.
6. Remove drip pan and dispose of contents IAW local SOP.
7. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

INLET PIPING ASSEMBLY REPAIR
Disassembly, Clean, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Petrolatum, technical (WP 0181, Item 15)
Sealing Compound (WP 0181, Item 19)
Gasket (WP 0157, Item 13)
Gasket, slide (WP 0157, Item 32)
Nut, self-locking, hexagon (WP 0157, Item 23) Qty: 16

Materials/Parts - Continued

Nut, hexagon (WP 0157, Item 31) Qty: 2
Nut, self-locking, hexagon (WP 0157, Item 45) Qty: 4

Personnel Required

Two

References

WP 0157

Equipment Condition

TRM drained (TM 10-4930-370-10)
Ladder removed (WP 0119)
Cable tray removed (WP 0090)
Inlet piping assembly butterfly valve levers removed (WP 0098)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Wet metal surfaces are slippery. Use caution when climbing on tank.
- Ground self and equipment before opening manhole cover to prevent explosion caused by electrostatic charge.
- Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly.
- Eye protection is required when opening manhole cover.
- Failure to comply may result in injury or death to personnel.

DISASSEMBLY

1. Push down on manhole cover, release latch, and slowly open manhole cover to gradually release pressure.
2. Place drip pan under Port B (Figure 1, Item 6) and bottom load valve piping (Figure 1, Item 1).
3. Remove eight locknuts (Figure 1, Item 2), bolts (Figure 1, Item 7), 16 washers (Figure 1, Item 8), Port B (Figure 1, Item 6), gasket (Figure 1, Item 5), butterfly valve (Figure 1, Item 4), and gasket (Figure 1, Item 3) from bottom load valve piping (Figure 1, Item 1). Discard locknuts and gaskets.

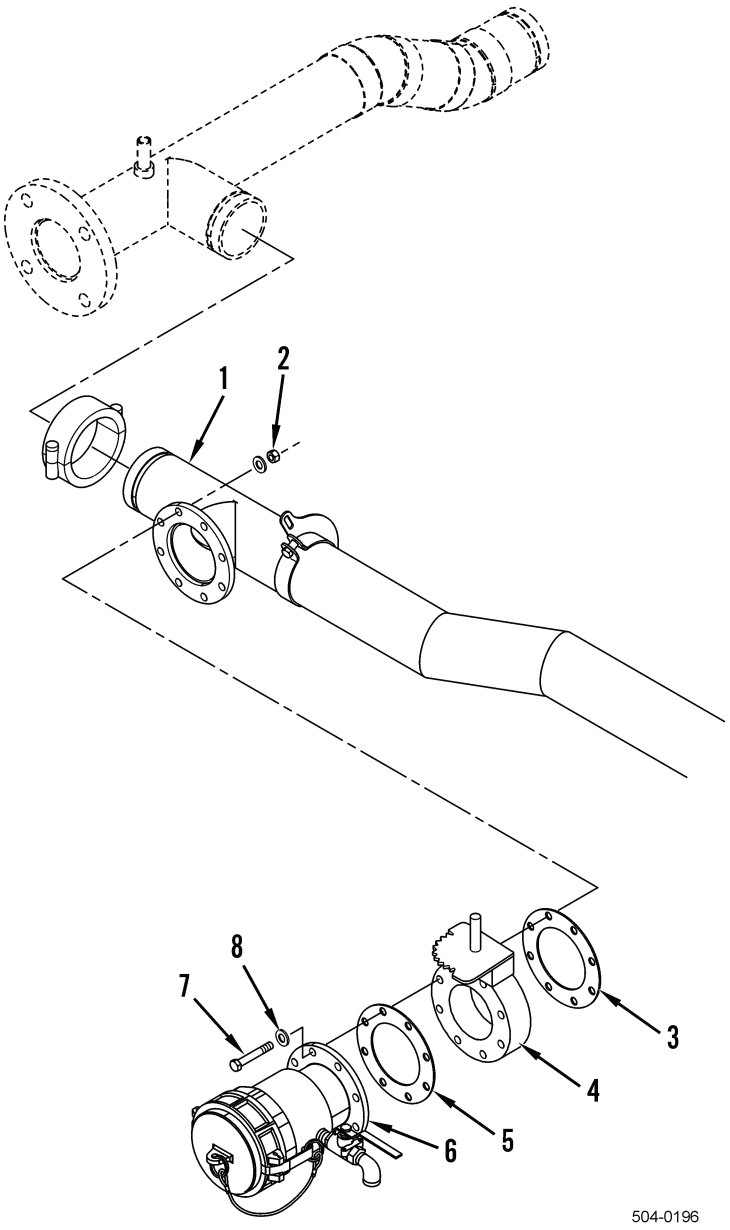


Figure 1. Port B Butterfly Valve.

DISASSEMBLY – CONTINUED

4. Remove eight locknuts (Figure 2, Item 6), bolts (Figure 2, Item 8), 16 washers (Figure 2, Item 7), Port G (Figure 2, Item 5), gasket (Figure 2, Item 4), butterfly valve (Figure 2, Item 3), and gasket (Figure 2, Item 2) from bottom load valve piping (Figure 2, Item 1). Discard locknuts and gaskets.

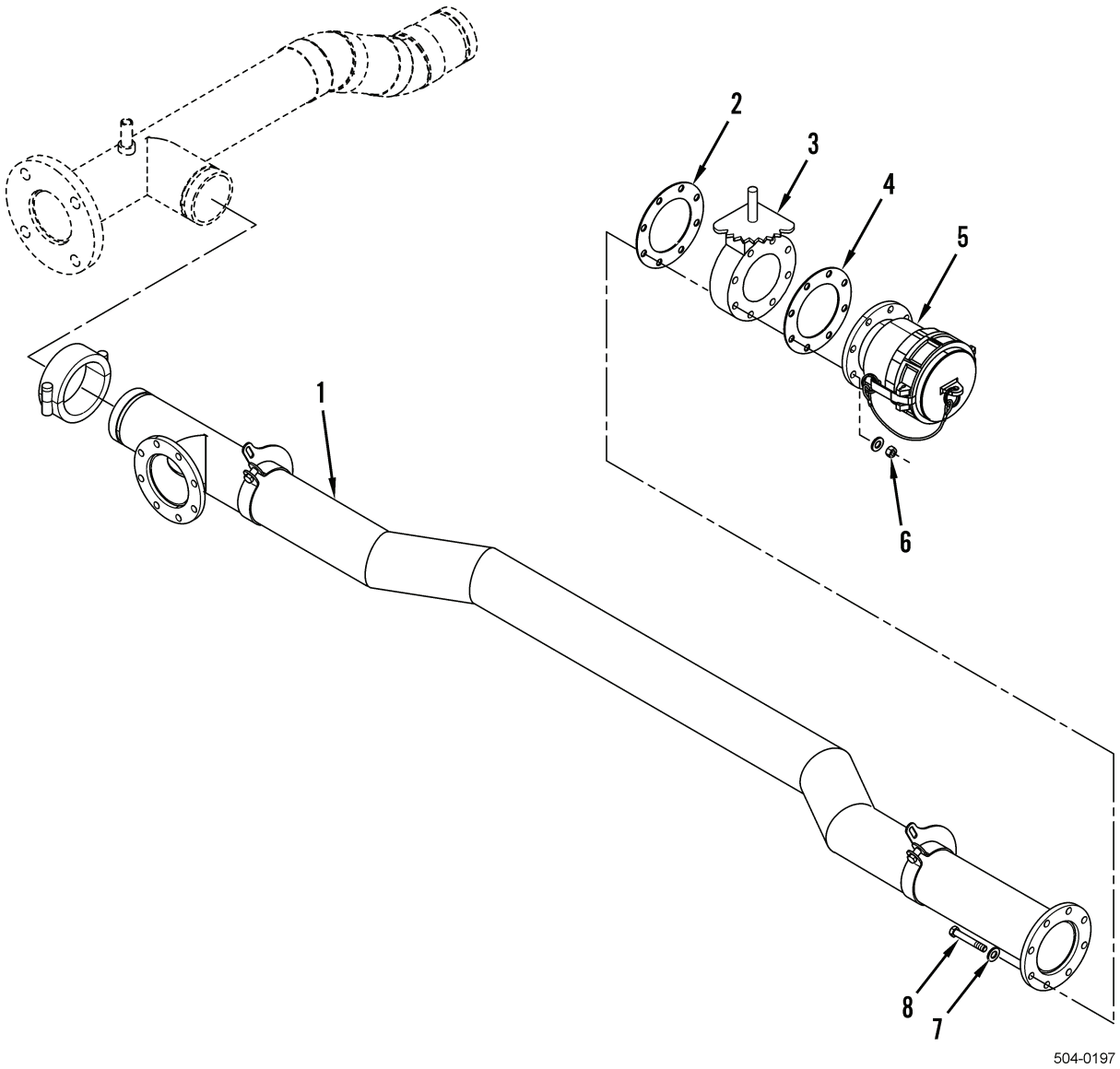


Figure 2. Port G Butterfly Valve.

DISASSEMBLY – CONTINUED

5. Remove two locknuts (Figure 3, Item 10), bolts (Figure 3, Item 1), coupling (Figure 3, Item 2), and slide gasket (Figure 3, Item 3) from bottom load valve piping (Figure 3, Item 6). Discard locknuts and gasket.

NOTE

To remove bottom load valve piping, move piping forward and rotate.

6. Remove eight locknuts (Figure 3, Item 5), bolts (Figure 3, Item 4), washers (Figure 3, Item 7), two straps (Figure 3, Item 9), brackets (Figure 3, Item 8) and bottom load valve piping (Figure 3, Item 6) from TRM. Discard locknuts.

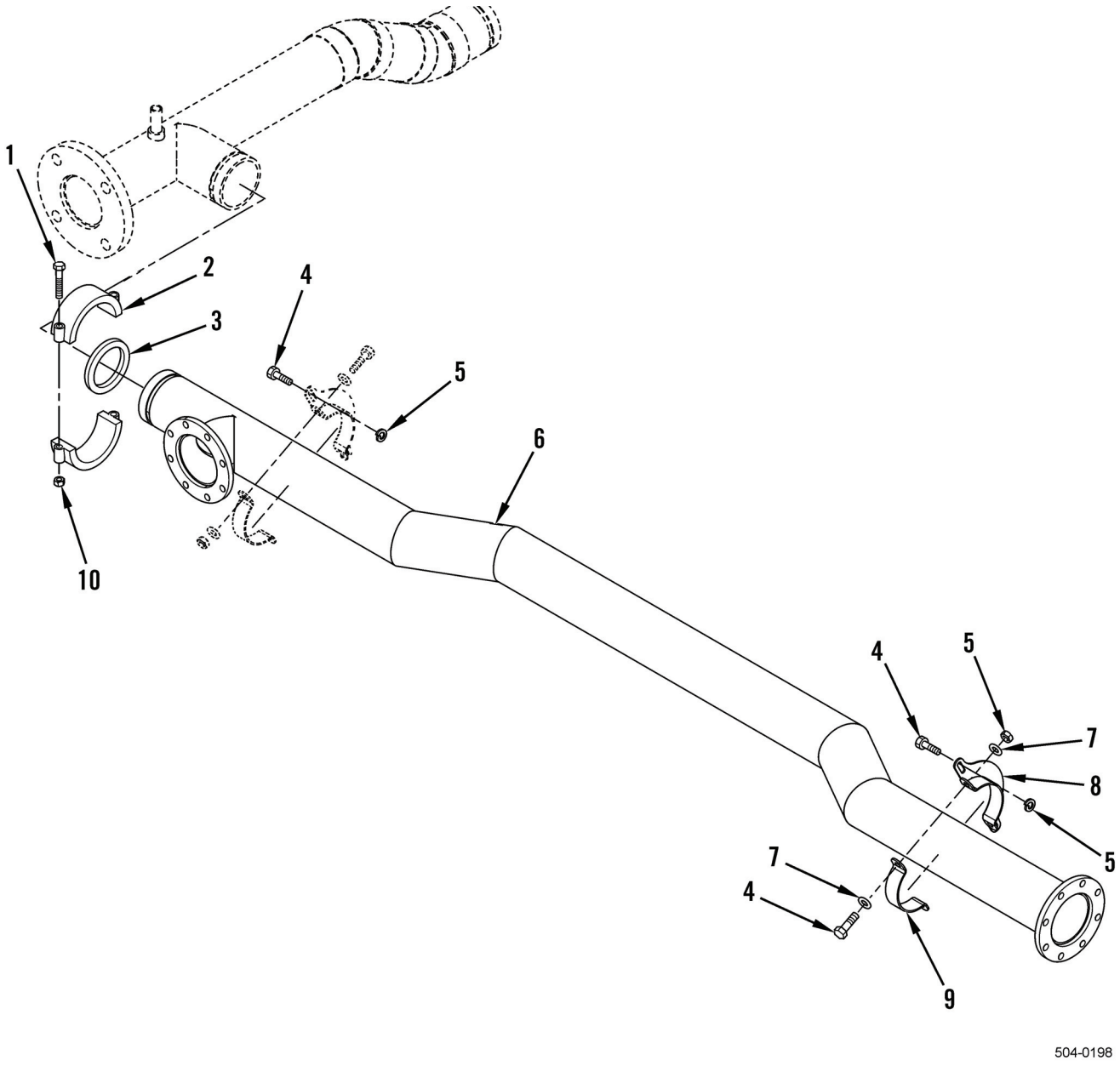
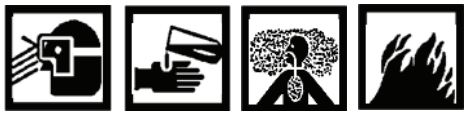


Figure 3. Bottom Load Valve Piping.

END OF TASK

CLEAN

WARNING



- Wear goggles to prevent foreign objects from entering your eyes. Failure to comply may result in an eye injury.
- Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel

1. Remove gasket debris from mating surfaces.
2. Clean all metallic parts with cleaning cloth and solvent cleaning compound.
3. Allow parts to dry thoroughly.

END OF TASK

ASSEMBLY

NOTE

- To install bottom valve piping, insert rearward end first and twist.
- Do not tighten hardware until piping is properly aligned and slide gasket is properly positioned.

1. Position bottom load valve piping (Figure 3, Item 6) on TRM.
2. Install new slide gasket (Figure 3, Item 3) using petrolatum on bottom load valve (Figure 3, Item 6).
3. Install two brackets (Figure 3, Item 8), straps (Figure 3, Item 9), eight washers (Figure 3, Item 7), bolts (Figure 3, Item 4), and new locknuts (Figure 3, Item 5) on bottom load valve piping (Figure 3, Item 6).
4. Install new coupling (Figure 3, Item 2), two bolts (Figure 3, Item 1), and new locknuts (Figure 3, Item 10) on bottom load valve piping (Figure 3, Item 6).

ASSEMBLY – CONTINUED

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

5. Install new gasket (Figure 4, Item 2) with sealing compound, butterfly valve (Figure 4, Item 3), new gasket (Figure 4, Item 4) with sealing compound, Port G (Figure 4, Item 5), 16 washers (Figure 4, Item 7), 8 bolts (Figure 4, Item 8), and locknuts (Figure 4, Item 6) on bottom load valve piping (Figure 4, Item 1). Torque bolts to 27-33 lb-ft (37-45 Nm).

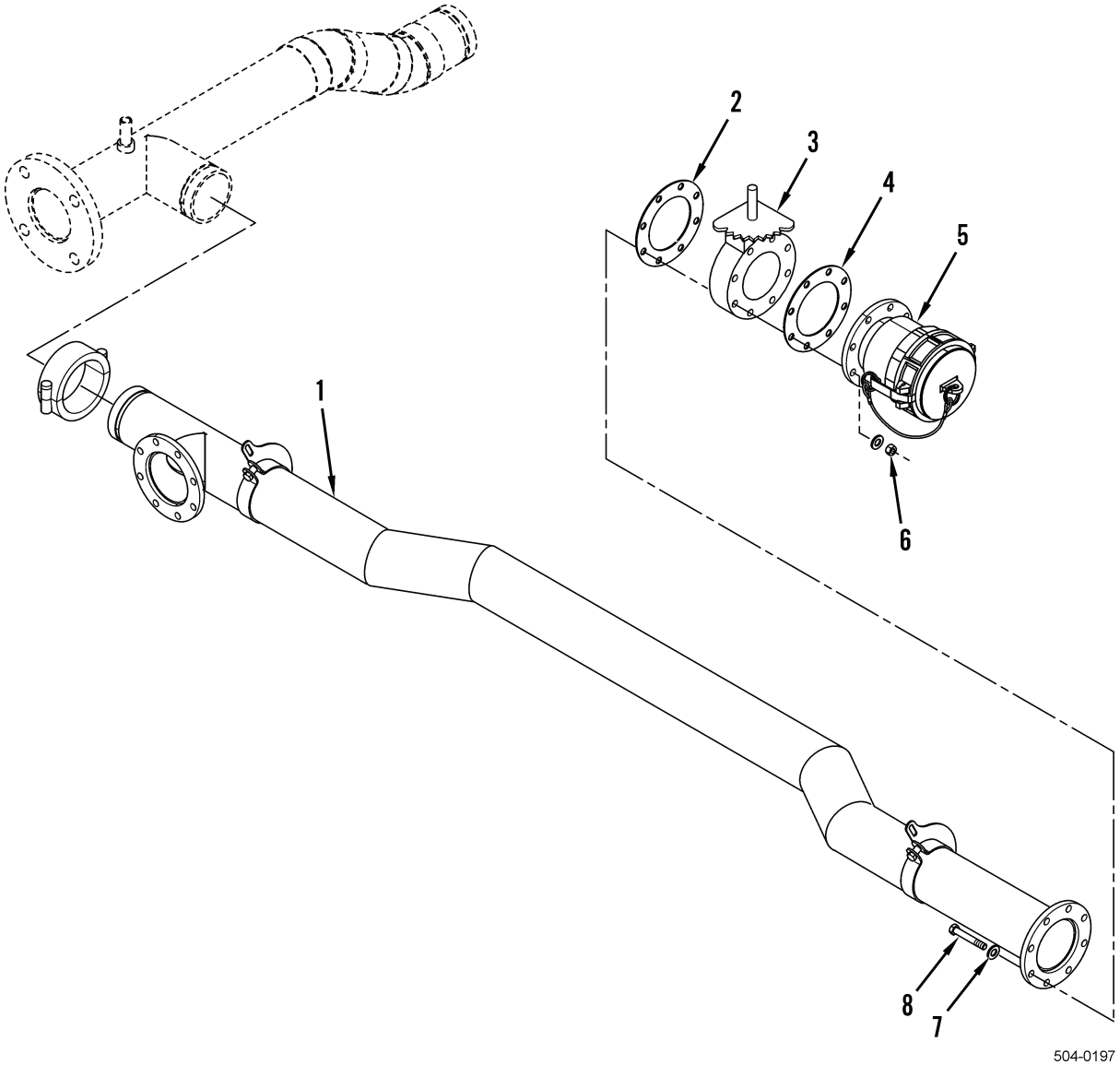


Figure 4. Port G Butterfly Valve.

ASSEMBLY – CONTINUED

6. Install new gasket (Figure 5, Item 3) with sealing compound, butterfly valve (Figure 5, Item 4), new gasket (Figure 5, Item 5) with sealing compound, Port B (Figure 5, Item 6), 16 washers (Figure 5, Item 8), 8 bolts (Figure 5, Item 7), and locknuts (Figure 5, Item 2) on bottom load valve piping (Figure 5, Item 1). Torque bolts to 27-33 lb-ft (37-45 Nm).

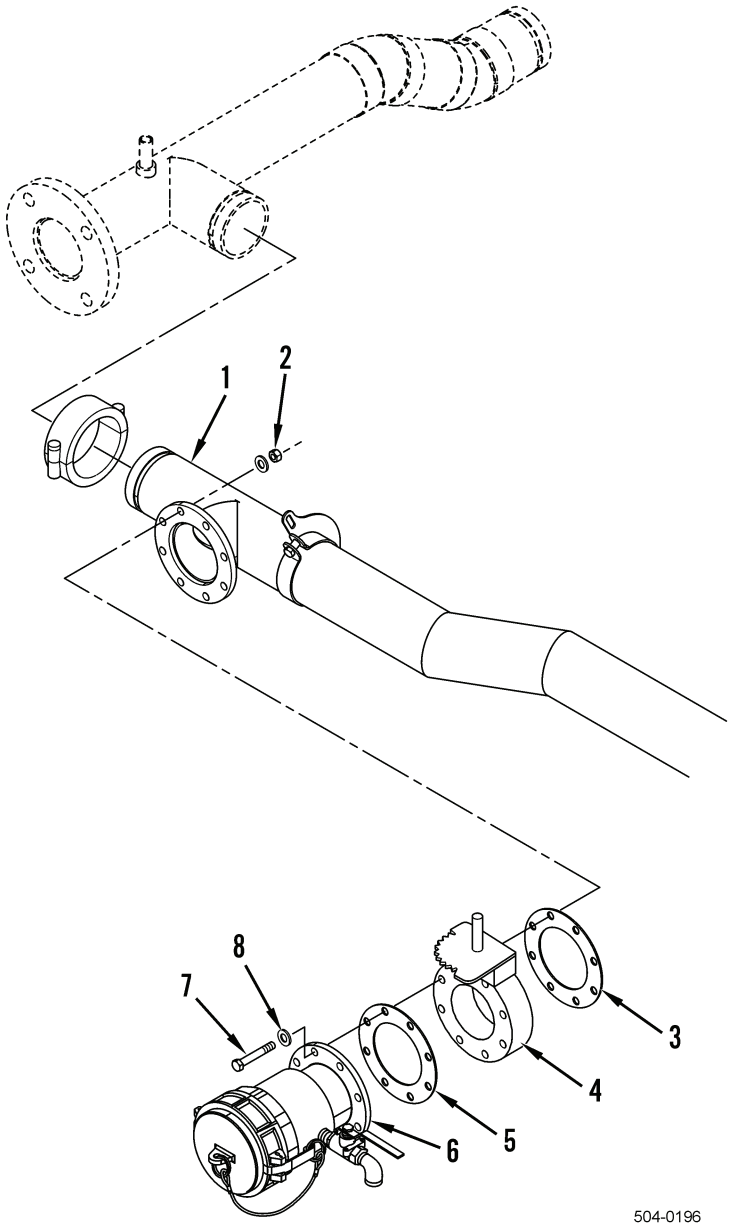


Figure 5. Port B Butterfly Valve.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install inlet piping assembly butterfly valve levers (WP 0098).
2. Install ladder (WP 0119).
3. Install cable tray (WP 0090).
4. Close manhole cover.
5. Remove drip pan and dispose of contents IAW local SOP.
6. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

INLET PIPING ASSEMBLY BUTTERFLY VALVE LEVER REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

References

WP 0157

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

1. Remove nut (Figure 1, Item 3) and bolt (Figure 1, Item 1) from manual control lever (Figure 1, Item 2).
2. Remove manual control lever (Figure 1, Item 2) from flow control valve shaft (Figure 1, Item 4).

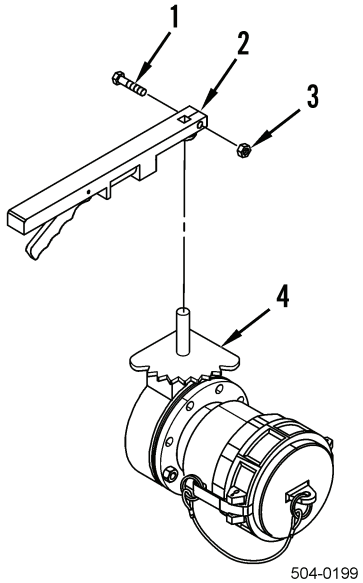


Figure 1. Flow Control Valve.

END OF TASK

INSTALLATION

1. Install manual control lever (Figure 1, Item 2) on flow control valve shaft (Figure 1, Item 4).
2. Install bolt (Figure 1, Item 1) and nut (Figure 1, Item 3) on manual control lever (Figure 1, Item 2).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

VAPOR RECOVERY PIPING ASSEMBLY REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)

Materials/Parts

Nut, self-locking, hexagon (WP 0158, Item 4)
Qty: 4

References

WP 0144
WP 0158

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Wet metal surfaces are slippery. Use caution when climbing on tank.
- Ground self and equipment before opening manhole cover to prevent explosion caused by electrostatic charge.
- Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly.
- Eye protection is required when opening manhole cover.
- Failure to comply may result in injury or death to personnel.

DISASSEMBLY

1. Push down on manhole cover, release latch, and slowly open manhole cover to gradually release pressure.
2. Remove dust cap (Figure 1, Item 8) from vapor recovery piping (Figure 1, Item 5).
3. Remove hose clamp (Figure 1, Item 6) securing vapor recovery piping (Figure 1, Item 5) to vent hood (Figure 1, Item 7).

NOTE

To aid in removal, two bolts holding drain valve can be removed.

4. Remove two locknuts (Figure 1, Item 4), bolts (Figure 1, Item 1) and pipe strap (Figure 1, Item 2) securing vapor recovery piping (Figure 1, Item 5) to top mounting bracket (Figure 1, Item 3). Discard locknuts.
5. Remove two locknuts (Figure 1, Item 9), bolts (Figure 1, Item 10), and four washers (Figure 1, Item 11) securing vapor recovery piping (Figure 1, Item 5) to side mounting bracket (Figure 1, Item 12). Discard locknuts.
6. Remove vapor recovery piping (Figure 1, Item 5).

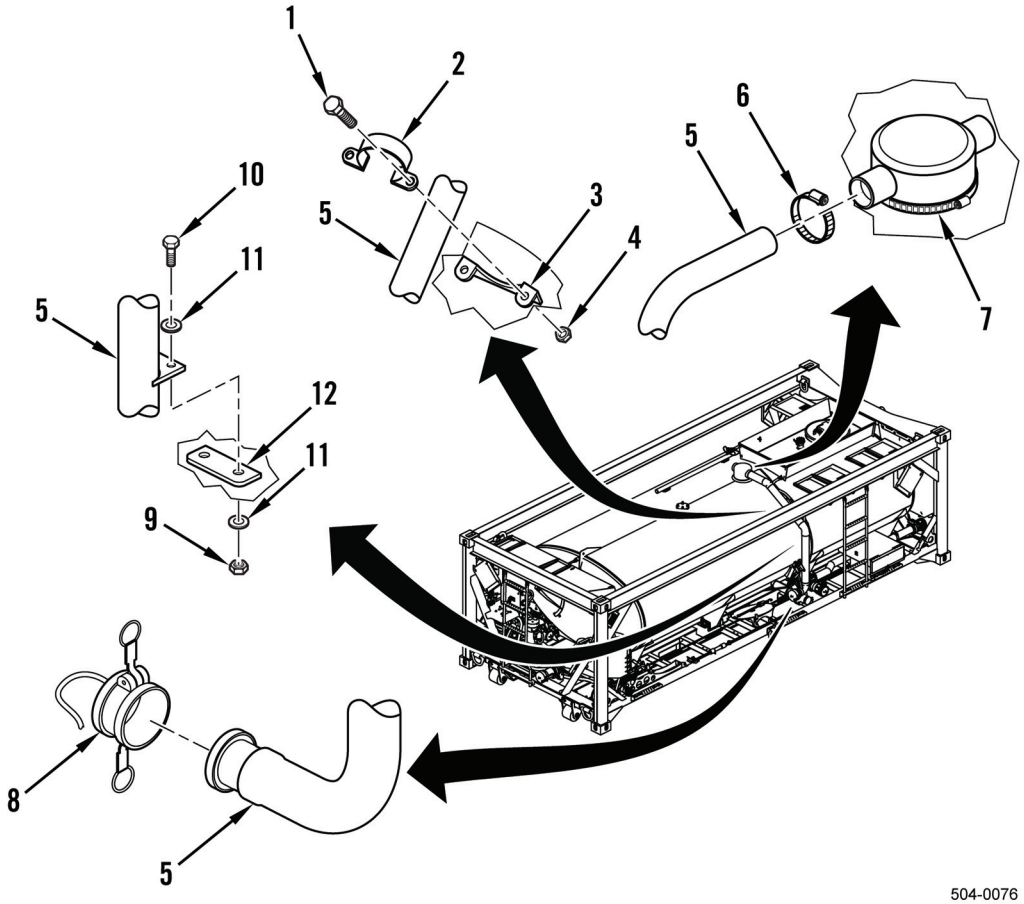


Figure 1. Vapor Recovery Piping Assembly.

END OF TASK

ASSEMBLY

1. Position vapor recovery piping (Figure 1, Item 5) on side mounting bracket (Figure 1, Item 12), top mounting bracket (Figure 1, Item 3), and vent hood (Figure 1, Item 7).
2. Install two bolts (Figure 1, Item 10), four washers (Figure 1, Item 11), and two new locknuts (Figure 1, Item 9) to secure vapor recovery piping (Figure 1, Item 5) to side mounting bracket (Figure 1, Item 12).
3. Install top mounting strap (Figure 1, Item 2), two bolts (Figure 1, Item 1), and two new locknuts (Figure 1, Item 4) to secure vapor recovery piping (Figure 1, Item 5) to top mounting bracket (Figure 1, Item 3).

NOTE

If removed, install two screws holding drain valve.

4. Position hose clamp (Figure 1, Item 6) on vapor recovery piping (Figure 1, Item 5).
5. Install vapor recovery piping (Figure 1, Item 5) to vent hood (Figure 1, Item 7). Tighten hose clamp (Figure 1, Item 6).
6. Install dust cap (Figure 1, Item 8) on vapor recovery piping (Figure 1, Item 5).
7. Close manhole cover.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V2 VALVE REPLACEMENT
Removal, Clean, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)
Crowfoot attachment, socket wrench (WP 0182, Item 3)

Materials/Parts

Sealing Compound (WP 0181, Item 19)
Petrolatum, technical (WP 0181, Item 15)
Gasket (WP 0144, Item 14)
Gasket, sump (WP 0159, Item 1)

Materials/Parts - Continued

Nut, self-locking, hexagon (WP 0144, Item 15) Qty: 8
Nut, self-locking, hexagon (WP 0159, Item 2) Qty: 6

Personnel Required

Two

References

WP 0144
WP 0159

Equipment Condition

TRM shut down (TM 10-4930-370-10)
Bottom load piping assembly removed (WP 0093)

WARNING

- Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Wet metal surfaces are slippery. Use caution when climbing on tank.
- Ground self and equipment before opening manhole cover to prevent explosion caused by electrostatic charge.
- Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly.
- Eye protection is required when opening manhole cover.
- Failure to comply may result in injury or death to personnel.

REMOVAL

1. Push down on manhole cover, release latch, and slowly open manhole cover to gradually release pressure.
2. Place drip pan under connections.
3. Remove vent valve assembly:
   a. Remove loop clamp (Figure 1, Item 4) securing vent hood (Figure 1, Item 1) to vent valve (Figure 1, Item 5).
   b. Loosen hose clamp (Figure 1, Item 2) securing vent hood (Figure 1, Item 1) to vapor recovery piping assembly (Figure 1, Item 3).
   c. Slide hose clamp (Figure 1, Item 2) onto vapor recovery piping assembly (Figure 1, Item 3).
   d. Remove vent hood (Figure 1, Item 1).

NOTE

Two old locknuts are used in installation for alignment purposes.

   e. Remove eight locknuts (Figure 1, Item 8). Discard six locknuts.
   f. Lift vent valve (Figure 1, Item 5) from studs (Figure 1, Item 7).
   g. Remove and discard gasket (Figure 1, Item 6).

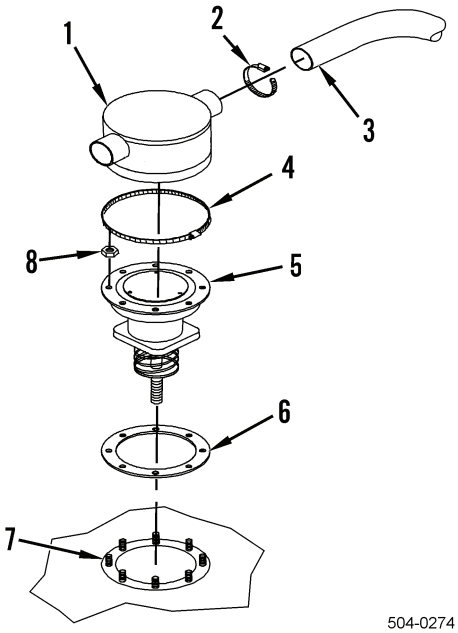


Figure 1. Vent Valve Assembly.

REMOVAL – CONTINUED

4. Using a wrench to hold nut (Figure 2, Item 1) and remove union (Figure 2, Item 2) from cable guide (Figure 2, Item 3).

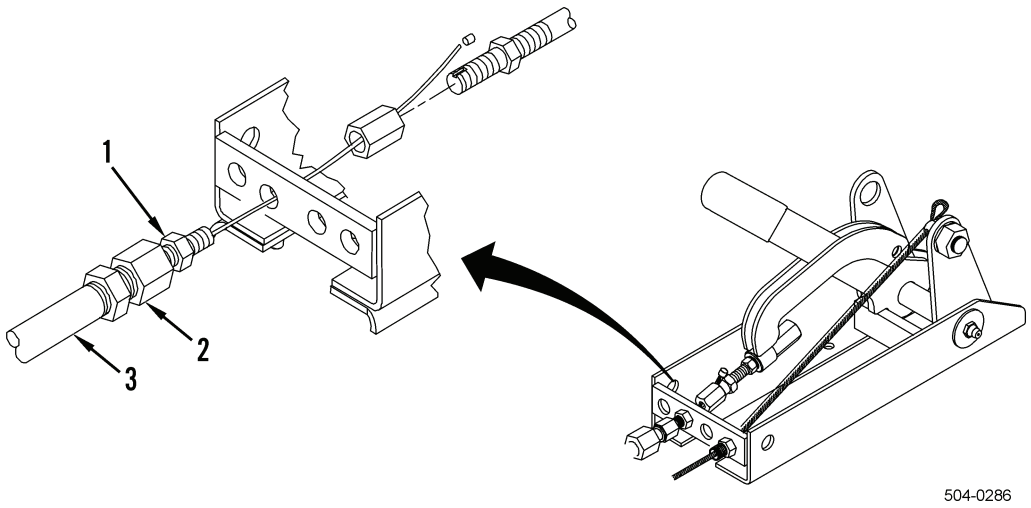


Figure 2. Cable Guide Union.

REMOVAL – CONTINUED

5. Remove cable from V2 valves:
   a. Loosen nuts (Figure 3, Item 7) on clamp (Figure 3, Item 1), securing cable (Figure 3, Item 6) on valve handle (Figure 3, Item 2).
   b. Loosen threaded bushing (Figure 3, Item 5) from V2 valve (Figure 3, Item 3).
   c. Remove cable guide (Figure 3, Item 4) and cable (Figure 3, Item 6) from V2 valve (Figure 3, Item 3).

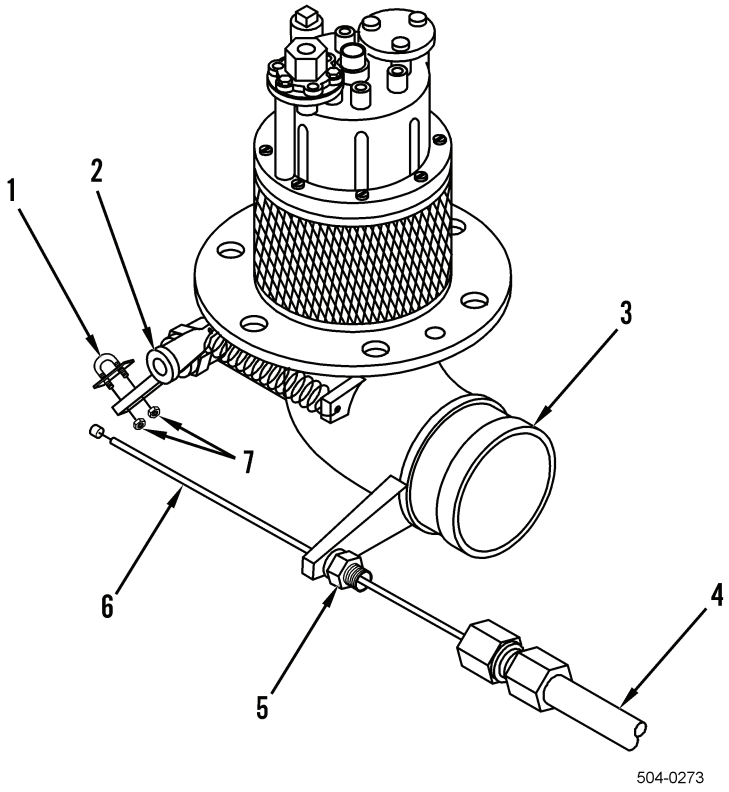
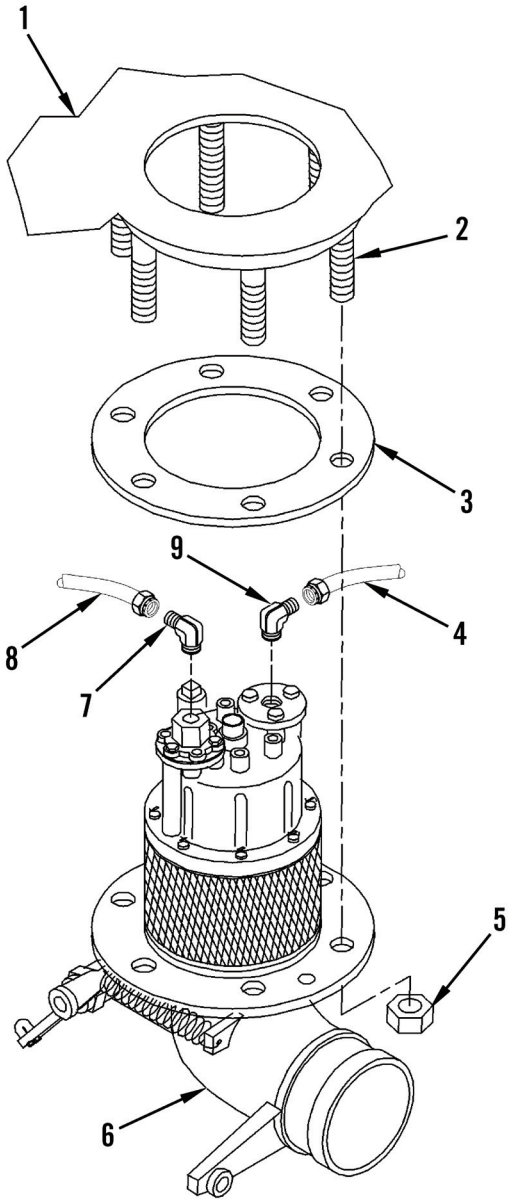


Figure 3. V2 Valve.

REMOVAL – CONTINUED

6. Remove six locknuts (Figure 4, Item 5) securing V2 valve (Figure 4, Item 6) to tank (Figure 4, Item 1). Discard locknuts.
7. Lower V2 valve (Figure 4, Item 6) and gasket (Figure 4, Item 3) from tank (Figure 4, Item 1).
8. Disconnect input (red) (Figure 4, Item 4) and output (blue) (Figure 4, Item 8) hoses.
9. Remove V2 valve (Figure 4, Item 6) and gasket (Figure 4, Item 3) from tank (Figure 4, Item 1).
10. Remove input elbow (Figure 4, Item 9) and output elbow (Figure 4, Item 7) from V2 valve (Figure 4, Item 6).



504-0097

Figure 4. V2 Valve.

END OF TASK

CLEAN

WARNING

Wear goggles to prevent foreign objects from entering your eyes. Failure to comply may result in an eye injury.

Remove any gasket debris from mating surface.

END OF TASK

INSTALLATION

1. Install input elbow (Figure 5, Item 9) and output elbow (Figure 5, Item 7) on V2 valve (Figure 5, Item 6).

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

2. Position V2 valve (Figure 5, Item 6) and gasket (Figure 5, Item 3) with sealing compound on studs (Figure 5, Item 2) on tank (Figure 5, Item 1).
3. Connect input (red) (Figure 5, Item 4) and output (blue) (Figure 5, Item 8) hoses.

NOTE

If studs were removed with locknuts, apply sealing compound to threads of studs before installation.

4. Install six new locknuts (Figure 5, Item 5) securing V2 valve (Figure 5, Item 6) to tank (Figure 5, Item 1). Torque locknuts to 30 lb-ft (40.7 Nm).

INSTALLATION – CONTINUED

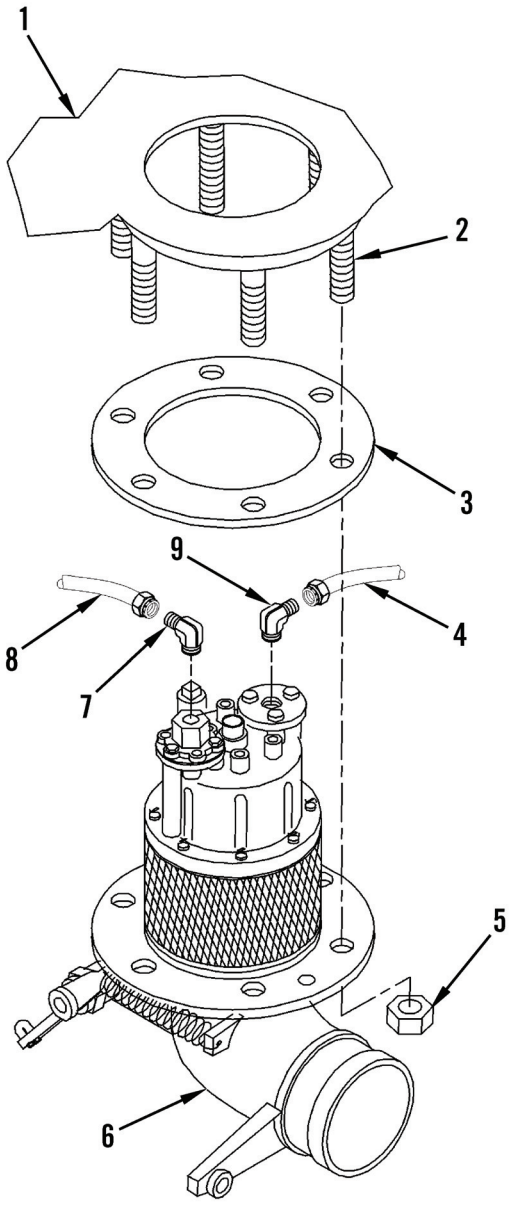


Figure 5. V2 Valve.

INSTALLATION – CONTINUED

5. Install cable to V2 valves:
   a. Install cable guide (Figure 6, Item 4) and cable (Figure 6, Item 6) on V2 valve (Figure 6, Item 3).
   b. Tighten threaded bushing (Figure 6, Item 5) on V2 valve (Figure 6, Item 3).
   c. Tighten nuts (Figure 6, Item 7) on clamp (Figure 6, Item 1) securing cable (Figure 6, Item 6) on valve handle (Figure 6, Item 2).

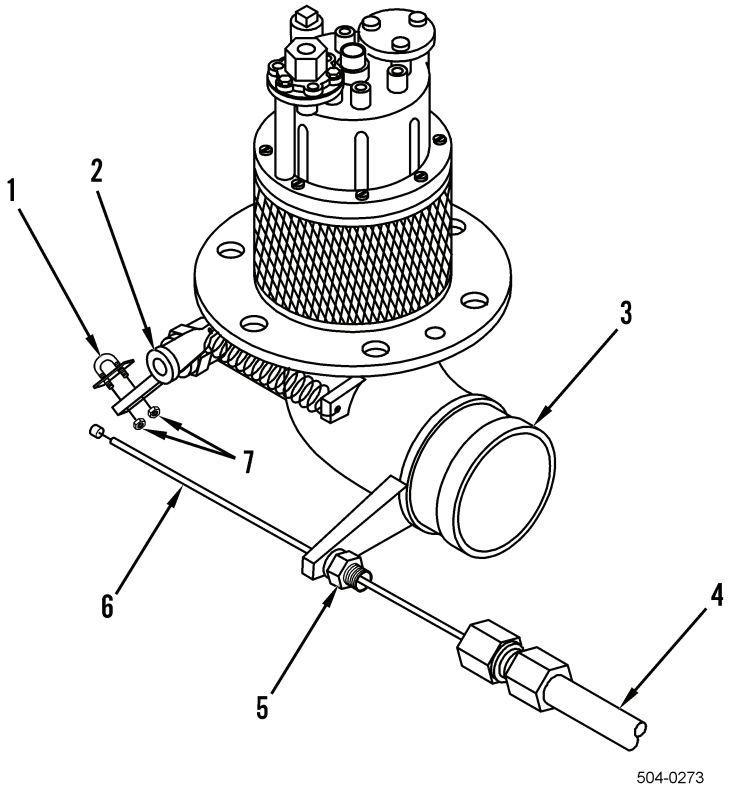


Figure 6. V2 Valve.

INSTALLATION – CONTINUED

6. Hold nut (Figure 7, Item 1) and attach union (Figure 7, Item 2) to cable guide (Figure 7, Item 3).

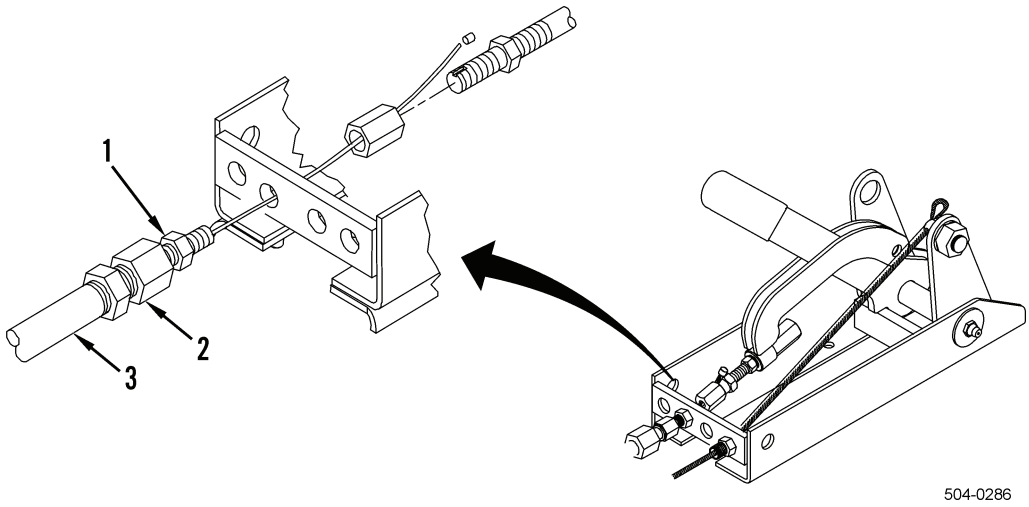


Figure 7. Cable Guide Union.

INSTALLATION – CONTINUED

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

7. Install vent valve assembly:
   a. Install new gasket (Figure 8, Item 6) with sealing compound.
   b. Install vent valve (Figure 8, Item 5) on studs (Figure 8, Item 7) and snugly install two old locknuts (Figure 8, Item 8) across from each other.
   c. Tighten locknuts (Figure 8, Item 8) securing vent valve (Figure 8, Item 5).
   d. Have assistant open and close V2 valve while observing vent valve (Figure 8, Item 5).

NOTE

The vent valve should open and close, confirming vent valve is properly aligned with internal valve center piston. If vent does not open and close, repeat steps 6a - 6c until vent valve opens and closes properly.

   e. Install six new locknuts (Figure 8, Item 8) on studs (Figure 8, Item 7). Tighten new locknuts.
   f. Remove two old locknuts (Figure 8, Item 8) and discard.
   g. Install two remaining new locknuts (Figure 8, Item 8) on studs (Figure 8, Item 7) to vent valve (Figure 8, Item 5).
   h. Install vent hood (Figure 8, Item 1) to vent valve (Figure 8, Item 5) and connect vapor recovery piping (Figure 8, Item 3) to vent hood (Figure 8, Item 1).
   i. Install loop clamp (Figure 8, Item 4) on vent hood (Figure 8, Item 1) and tighten to secure to vent valve (Figure 8, Item 5).
   j. Slide clamp (Figure 8, Item 2) from vapor recovery piping (Figure 8, Item 3) on vent hood (Figure 8, Item 1). Tighten clamp (Figure 8, Item 2).

INSTALLATION – CONTINUED

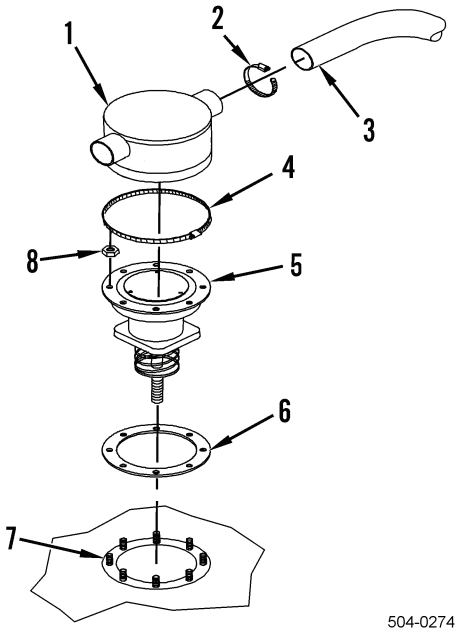


Figure 8. Vent Valve Assembly.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install bottom load piping assembly (WP 0093).
2. Close manhole cover.
3. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V1 VALVE REPLACEMENT
Removal, Clean, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Crowfoot attachment, socket wrench (WP 0182, Item 3)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Sealing Compound (WP 0181, Item 19)
Petrolatum, technical (WP 0181, Item 15)
Sealing compound (WP 0181, Item 20)
Gasket, sump (WP 0160, Item 1)
Nut, self-locking, hexagon (WP 0160, Item 2) Qty: 8
Nut, self-locking, hexagon (WP 0157, Item 41) Qty: 4

Personnel Required

Two

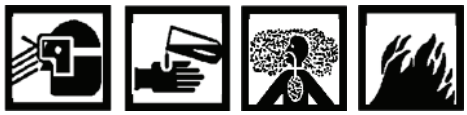
References

WP 0157
WP 0160

Equipment Condition

V1 valve fusible link removed (WP 0102)
V1 valve cable guide removed (WP 0105)

WARNING



Goggles and gloves must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources or static electricity around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Place drip pan under V1 valve (Figure 1, Item 5).
2. Remove two locknuts (Figure 1, Item 8) and bolts (Figure 1, Item 6) securing coupling (Figure 1, Item 10) to discharge piping assembly (Figure 1, Item 7) and V1 valve (Figure 1, Item 5). Discard locknuts.
3. Remove coupling (Figure 1, Item 10) from discharge piping assembly (Figure 1, Item 7) and V1 valve (Figure 1, Item 5).
4. Remove slide gasket (Figure 1, Item 9) and discard if damaged.

NOTE

Steps 5 through 7 will need to be performed to loosen discharge piping assembly if discharge piping assembly is tight against V1 valve.

5. Remove two locknuts (Figure 2, Item 4), and bolts (Figure 2, Item 1) from coupling (Figure 2, Item 2). Discard locknuts.
6. Remove coupling (Figure 2, Item 2) securing upper discharge pipe (Figure 2, Item 3) to lower discharge pipe (Figure 2, Item 6).
7. Remove slide gasket (Figure 2, Item 5) from lower discharge pipe (Figure 2, Item 6).
8. Remove eight locknuts (Figure 1, Item 4) securing V1 valve (Figure 1, Item 5) to TRM (Figure 1, Item 1). Discard locknuts.
9. Remove V1 valve (Figure 1, Item 5) from TRM (Figure 1, Item 1).
10. Remove gasket (Figure 1, Item 3) from TRM (Figure 1, Item 1) and discard.

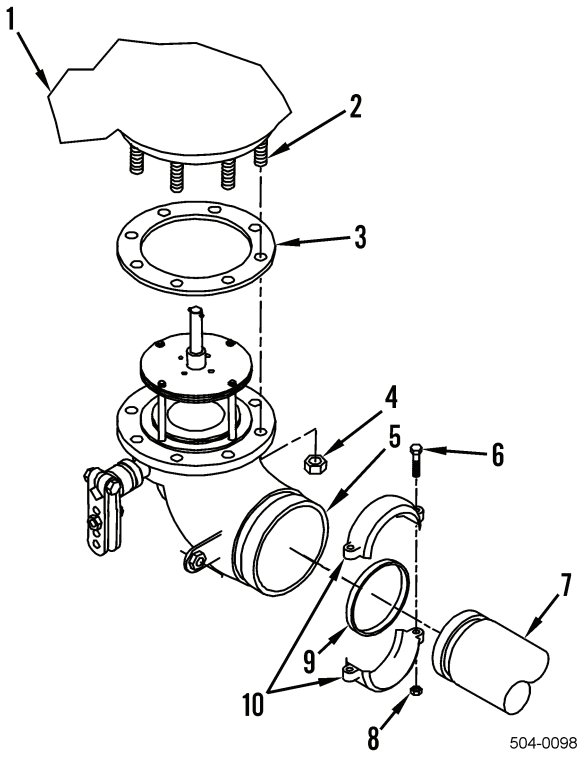


Figure 1. V1 Valve.

REMOVAL – CONTINUED

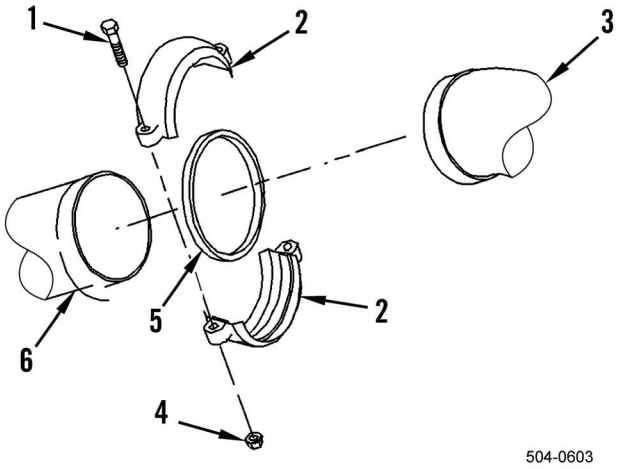


Figure 2. Upper Discharge Piping Assembly.

END OF TASK

CLEAN

WARNING

Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

1. Remove gasket debris from mating surfaces.
2. Clean all metallic parts with cleaning cloth and solvent cleaning compound.
3. Allow parts to dry thoroughly.

END OF TASK

INSTALLATION

WARNING

Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury to personnel.

1. Install gasket (Figure 3, Item 3) with sealing compound on studs (Figure 3, Item 2) and TRM (Figure 3, Item 1).
2. Install V1 valve (Figure 3, Item 5) on TRM (Figure 3, Item 1) and align with discharge piping assembly (Figure 3, Item 7).

NOTE

If studs were removed with locknut, apply sealing compound to threads of studs before installation.

3. Install eight new locknuts (Figure 3, Item 4) to secure V1 valve (Figure 3, Item 5) to TRM (Figure 3, Item 1). Torque locknuts to 30 lb-ft (40.7 Nm).
4. Install slide gasket (Figure 3, Item 9).

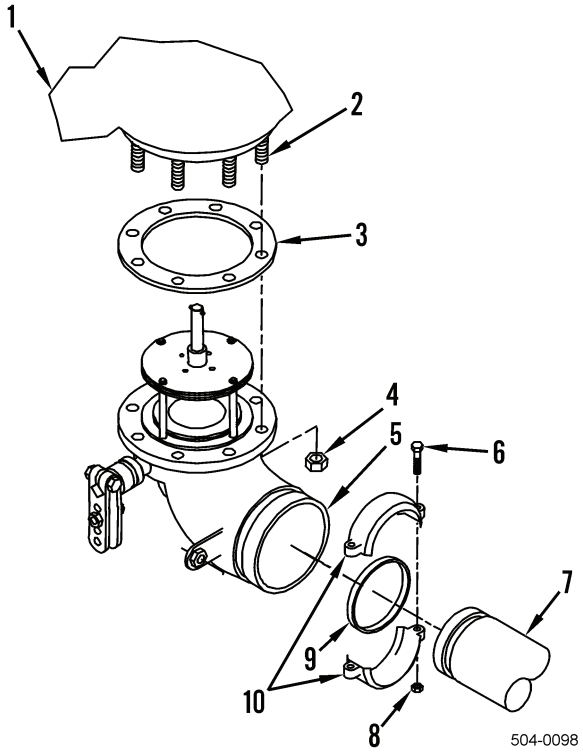


Figure 3. V1 Valve.

INSTALLATION – CONTINUED

5. Lubricate inner surface of couplings (Figure 3, Item 10) lightly with petrolatum.
6. Position coupling (Figure 3, Item 10) over V1 valve (Figure 3, Item 5) and discharge piping assembly (Figure 3, Item 7) connection.
7. Install two bolts (Figure 3, Item 6) and two new locknuts (Figure 3, Item 8) on coupling (Figure 3, Item 10).
8. Perform steps 9 through 11 before tightening nuts (Figure 3, Item 8) if coupling (Figure 4, Item 2) on upper discharge piping assembly (Figure 4, Item 3) was removed during removal procedure.
9. Lubricate inner surface of coupling (Figure 4, Item 2) lightly with petrolatum. Align upper discharge piping assembly (Figure 4, Item 3) with mating surface on lower discharge pipe (Figure 4, Item 6).
10. Install slide gasket (Figure 4, Item 5) down lower discharge pipe (Figure 4, Item 6) and install coupling (Figure 4, Item 2).
11. Install two new locknuts (Figure 4, Item 4) and bolts (Figure 4, Item 1).
12. Tighten nuts (Figure 3, Item 8) evenly.

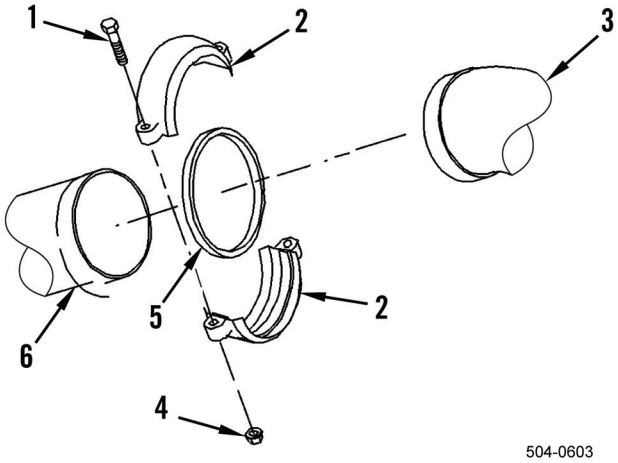


Figure 4. Upper Discharge Piping Assembly.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install V1 valve fusible link (WP 0102).
2. Install V1 valve cable guide (WP 0105).
3. Remove drip pan and dispose of contents IAW local SOP.
4. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V1 VALVE FUSIBLE LINK REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

Materials/Parts

Fusible link (WP 0160, Item 14)
Washer, lock (WP 0160, Item 9)

References

WP 0160

Equipment Condition

TRM drained (TM 10-4930-370-10)
TRM mounted on PLS trailer (TM 10-4930-370-10)

REMOVAL

1. Hold flat surface on fusible link (Figure 1, Item 9) before removing nut (Figure 1, Item 7), and remove nut (Figure 1, Item 7) and cable (Figure 1, Item 8) from fusible link (Figure 1, Item 9).
2. Remove nut (Figure 1, Item 11) and lockwasher (Figure 1, Item 12) from bolt (Figure 1, Item 5) in center of lever arm (Figure 1, Item 13). Discard lockwasher.
3. Remove bolt (Figure 1, Item 5) with nut (optional) from lever arm (Figure 1, Item 13).
4. Remove cotter pin (Figure 1, Item 6) from clevis pin (Figure 1, Item 10) and discard.
5. Remove clevis pin (Figure 1, Item 10) from lever arm (Figure 1, Item 13) and fusible link (Figure 1, Item 9).
6. Remove fusible link (Figure 1, Item 9) from lever arm (Figure 1, Item 13) and discard.
7. Remove nut (Figure 1, Item 1) and lockwasher (Figure 1, Item 2) from bolt (Figure 1, Item 3) at top of lever arm (Figure 1, Item 13). Discard lockwasher.
8. Remove bolt (Figure 1, Item 3) from lever arm (Figure 1, Item 13).
9. Remove lever arm (Figure 1, Item 13) from V1 valve (Figure 1, Item 4).

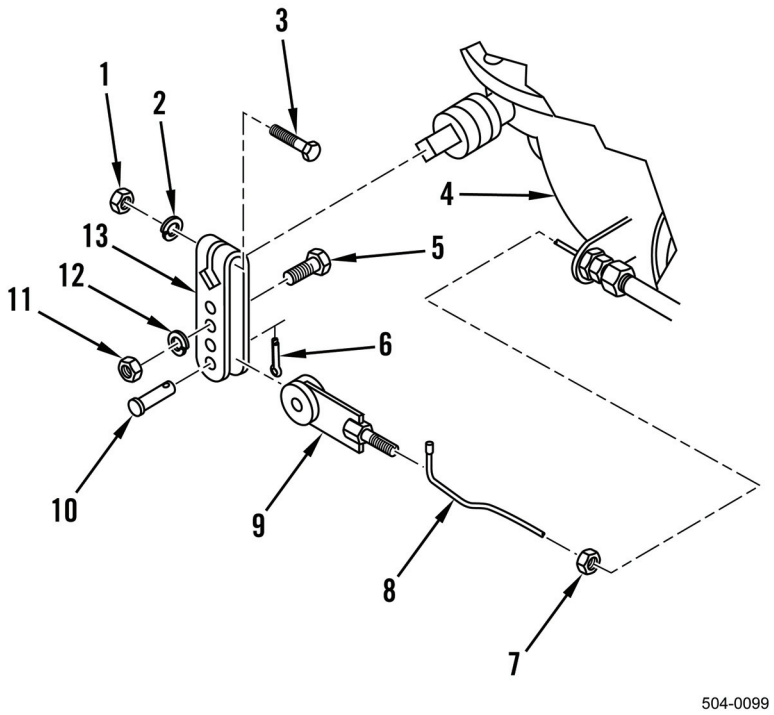


Figure 1. Fusible Link.

END OF TASK

INSTALLATION

1. Install lever arm (Figure 1, Item 13) on V1 valve (Figure 1, Item 4).
2. Install bolt (Figure 1, Item 3) and new lockwasher (Figure 1, Item 2) in lever arm (Figure 1, Item 13).

INSTALLATION – CONTINUED

3. Install nut (Figure 1, Item 1) on bolt (Figure 1, Item 3) and tighten.
4. Position new fusible link (Figure 1, Item 9) between tangs on lever arm (Figure 1, Item 13).
5. Install clevis pin (Figure 1, Item 10) through lever arm (Figure 1, Item 13) and fusible link (Figure 1, Item 9).
6. Install new cotter pin (Figure 1, Item 6) through clevis pin (Figure 1, Item 10).
7. Bend cotter pin (Figure 1, Item 6) to secure clevis pin (Figure 1, Item 10) in lever arm (Figure 1, Item 13).
8. Install bolt (Figure 1, Item 5) with nut (optional) and new lockwasher (Figure 1, Item 12) in lever arm (Figure 1, Item 13).
9. Install nut (Figure 1, Item 11) on bolt (Figure 1, Item 5) and tighten.
10. Ensure V1 valve is closed.
11. Insert end of cable (Figure 1, Item 8) through nut (Figure 1, Item 7) and place in groove of threads in fusible link (Figure 1, Item 9).
12. Install nut (Figure 1, Item 7) on fusible link (Figure 1, Item 9) and hold flat surface on fusible link before tightening nut.
13. Remove drip pans and dispose of contents IAW local SOP.
14. Recirculate fuel to check for leaks (TM 10-4930-370-10).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CONTROL LEVER ASSEMBLY (V1) REPAIR
Disassembly, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Compression tool, multidiameter (WP 0182, Item 2)

Materials/Parts

Bushing, sleeve (WP 0163, Item 2) Qty: 2
Nut, self-locking, hexagon (WP 0161, Item 2) Qty: 4
Nut, self-locking, hexagon (WP 0161, Item 12) Qty: 4
Washer, lock (WP 0161, Item 7)

References

WP 0105
WP 0161
WP 0163

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)

DISASSEMBLY

1. Remove jamnut (Figure 1, Item 8), lockwasher (Figure 1, Item 7), and cable clamp bushing (Figure 1, Item 6) from trip cable clamp (Figure 1, Item 2) on control lever (Figure 1, Item 5). Discard lockwasher.
2. Remove bushing sleeve (Figure 1, Item 4) from cable (Figure 1, Item 3). Discard bushing sleeve.
3. Remove cable (Figure 1, Item 3) from trip cable clamp (Figure 1, Item 2).
4. Use a wrench to hold nut (Figure 1, Item 10) and remove union (Figure 1, Item 11) from nipple (Figure 1, Item 9) and control lever assembly (Figure 1, Item 1).
5. Remove one end of cable guide (Figure 1, Item 12).

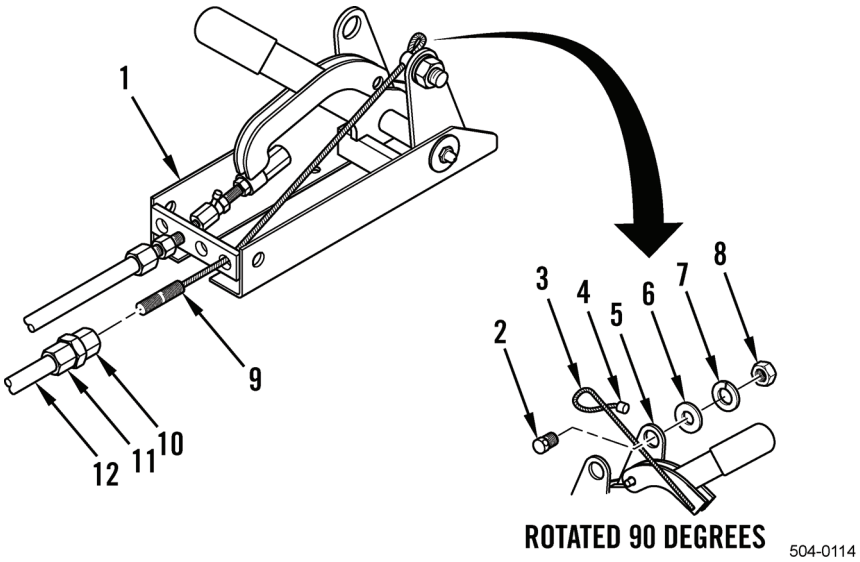


Figure 1. Control Cable and Guide.

DISASSEMBLY – CONTINUED

6. Remove clamping nut (Figure 2, Item 5) from adjusting bolt (Figure 2, Item 4).
7. Remove bushing sleeve (Figure 2, Item 3) from cable (Figure 2, Item 2). Discard bushing sleeve.
8. Remove clamping nut (Figure 2, Item 5) from cable (Figure 2, Item 2).
9. Use a wrench to hold nut (Figure 2, Item 7) and remove union (Figure 2, Item 8) from nipple (Figure 2, Item 6).
10. Remove cable guide (Figure 2, Item 9) from control lever body (Figure 2, Item 1).

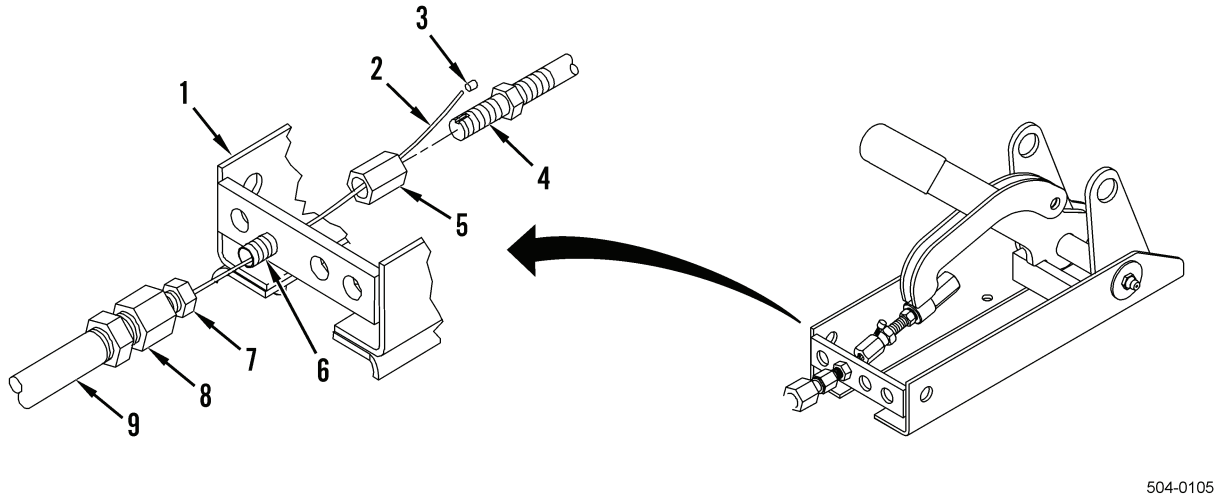


Figure 2. Control Cable and Guide.

11. Remove four locknuts (Figure 3, Item 6), flat washers (Figure 3, Item 5), and bolts (Figure 3, Item 3) from TRM frame (Figure 3, Item 4) and TRM control lever mounting bracket (Figure 3, Item 2). Discard locknuts.
12. Remove the TRM control lever assembly (Figure 3, Item 1) and TRM control lever mounting bracket (Figure 3, Item 2) from TRM frame (Figure 3, Item 4) as an assembly.
13. Remove four locknuts (Figure 3, Item 7) and bolts (Figure 3, Item 10) securing the TRM control lever assembly (Figure 3, Item 1) to TRM control lever mounting bracket (Figure 3, Item 2). Discard locknuts.
14. Remove TRM control lever assembly (Figure 3, Item 1) from TRM control lever mounting bracket (Figure 3, Item 2).
15. Remove nipples (Figure 3, Item 9) and nuts (Figure 3, Item 8) from TRM control lever assembly (Figure 3, Item 1) and save for re-attachment.

DISASSEMBLY – CONTINUED

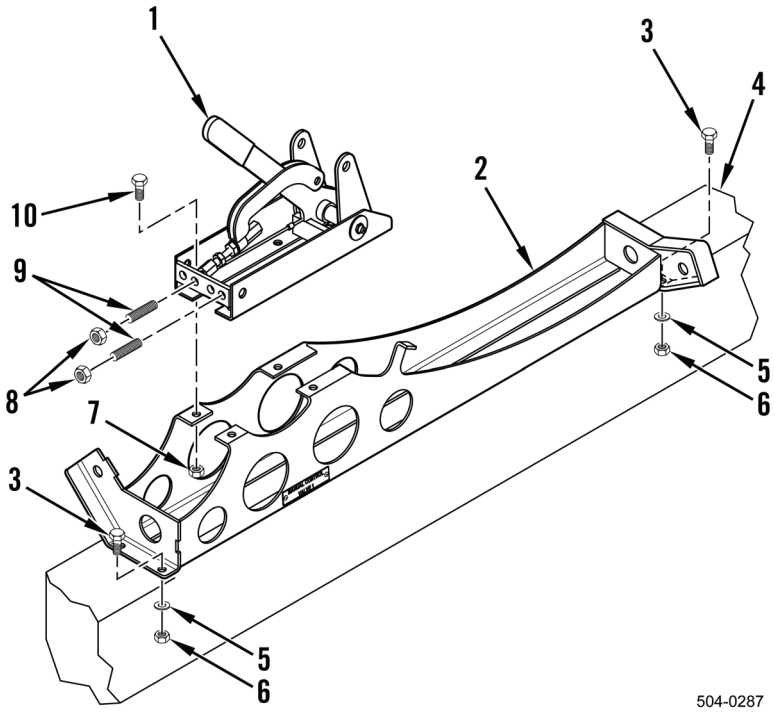


Figure 3. Control Lever Assembly and Mounting Bracket.

END OF TASK

ASSEMBLY

NOTE

- When installing cable guides, ensure at least 1 in. to 2 in. of cable extends beyond attachment point on either end to allow for possible adjustment.
- When cutting cables, tape ends to prevent fraying before installing stop sleeves.
- When installing stop sleeves, attach them at very ends of cable to allow for possible adjustment.

1. Install nipples (Figure 3, Item 9) and nuts (Figure 3, Item 8) to TRM control lever assembly (Figure 3, Item 1).
2. Install TRM control lever assembly (Figure 3, Item 1) to TRM control lever mounting bracket (Figure 3, Item 2) and secure with four bolts (Figure 3, Item 10) and new locknuts (Figure 3, Item 7).
3. Install TRM control lever assembly (Figure 3, Item 1) and TRM control lever mounting bracket (Figure 3,Item 2) to TRM frame (Figure 3, Item 4) as an assembly and secure with four bolts (Figure 3, Item 3), flat washers (Figure 3, Item 5), and new locknuts (Figure 3, Item 6).

ASSEMBLY – CONTINUED

4. Align cable guide (Figure 4, Item 9) with nipple (Figure 4, Item 6) of control lever body (Figure 4, Item 1).

NOTE

The end of cable must protrude past adjusting bolt (Figure 4, Item 4) far enough to install stop sleeve (Figure 4, Item 3).

5. Insert cable (Figure 4, Item 2) through nipple (Figure 4, Item 6).
6. Adjust jamnut on adjusting bolt (Figure 4, Item 4) to lengthen adjusting bolt.
7. Replace cable guide (WP 0105) if adjustments cannot be made to allow for proper length of cable (Figure 4, Item 2).
8. Install clamping nut (Figure 4, Item 5) on cable (Figure 4, Item 2).
9. Position cable (Figure 4, Item 2) in groove of adjusting bolt (Figure 4, Item 4).
10. Use a wrench to hold nut (Figure 4, Item 7) and attach union (Figure 4, Item 8) to nipple (Figure 4, Item 6). Tighten union.
11. Install clamping nut (Figure 4, Item 5) on adjusting bolt (Figure 4, Item 4) to secure cable (Figure 4, Item 2). Tighten clamping nut.
12. Remove excess cable (Figure 4, Item 2).
13. Install new bushing sleeve (Figure 4, Item 3) on end of cable (Figure 4, Item 2).

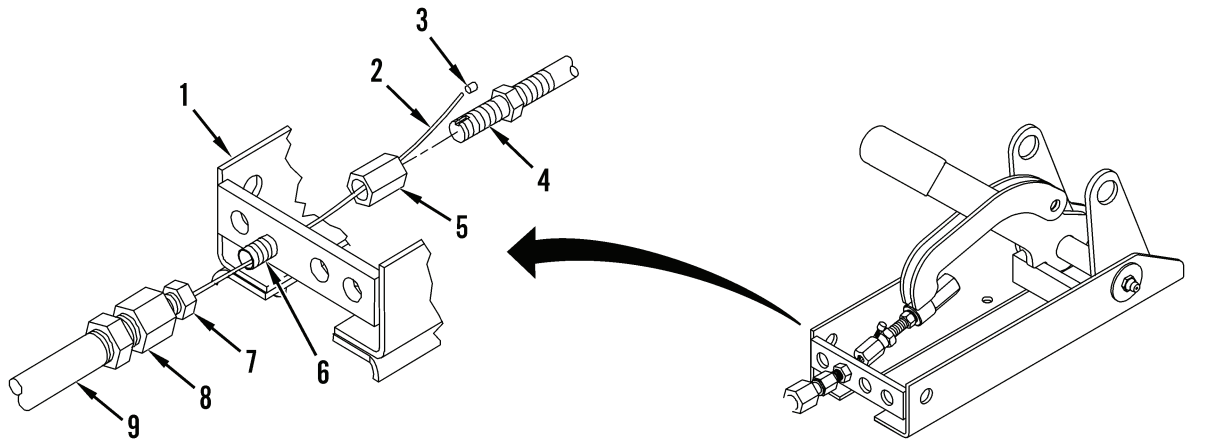


Figure 4. Control Cable and Guide.

ASSEMBLY – CONTINUED

14. Thread new cable (Figure 5, Item 3) through control lever assembly (Figure 5, Item 1) and trip cable clamp (Figure 5, Item 2). Loop end of cable (Figure 5, Item 3) back through trip cable clamp (Figure 5, Item 2) and protrude out far enough to install stop sleeve (Figure 5, Item 4).
15. Install new bushing sleeve (Figure 5, Item 4) on cable (Figure 5, Item 3) and crimp.
16. Install cable clamp bushing (Figure 5, Item 5), new lockwasher (Figure 5, Item 6), and jamnut (Figure 5, Item 7) to trip cable clamp (Figure 5, Item 2).

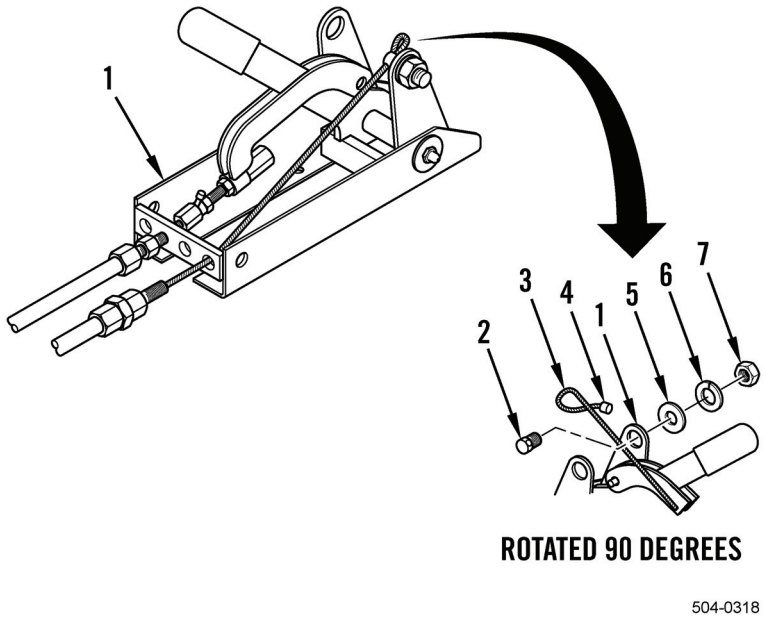


Figure 5. Control Cable and Guide.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

SIDE MECHANICAL OPERATOR CONTROL LEVER (V2) REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

Materials/Parts

Nut, self-locking, hexagon (WP 0162, Item 7)
Qty: 4

Personnel Required

Two

References

WP 0162

Equipment Condition

V2 valve cable guide removed (WP 0106)
V2 emergency stop cable guide removed (WP 0109)

REMOVAL

1. Remove four locknuts (Figure 1, Item 4) from bolts (Figure 1, Item 1) securing control assembly (Figure 1, Item 2) to tank mounting bracket (Figure 1, Item 3). Discard locknuts.
2. Remove control lever assembly (Figure 1, Item 2).

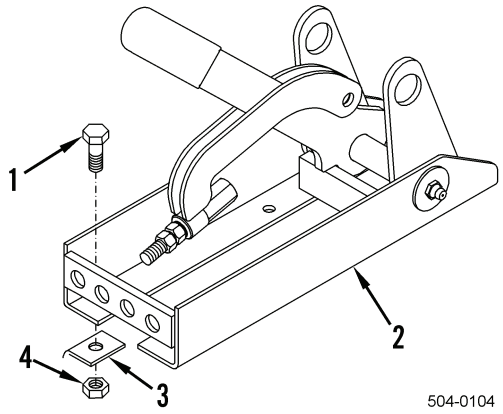


Figure 1. Control Lever Assembly.

END OF TASK

INSTALLATION

1. Position control lever assembly (Figure 1, Item 2).
2. Install four bolts (Figure 1, Item 1) through control lever assembly (Figure 1, Item 2) and tank mounting brackets (Figure 1, Item 3).
3. Install four new locknuts (Figure 1, Item 4) on bolts (Figure 1, Item 1) and tighten.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install V2 valve cable guide (WP 0106).
2. Install V2 emergency stop cable guide (WP 0109).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V1 VALVE CABLE GUIDE REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Compression tool, multidiameter (WP 0182, Item 2)
Cutter, bolt lightweight, 24 in. (WP 0182, Item 5)

Materials/Parts

Strap, tiedown (WP 0181, Item 22)
Sleeve, bushing (WP 0163, Item 2) Qty: 2

References

WP 0163

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)
TRM mounted on PLS trailer (TM 10-4930-370-10)

REMOVAL

1. Remove clamping nut (Figure 1, Item 5) from adjusting bolt (Figure 1, Item 4).
2. Remove bushing sleeve (Figure 1, Item 3) from cable (Figure 1, Item 2) and discard.
3. Remove clamping nut (Figure 1, Item 5) from cable (Figure 1, Item 2).
4. Use a wrench to hold nut (Figure 1, Item 7) and remove union (Figure 1, Item 8) from nipple (Figure 1, Item 6).
5. Remove pipe-cable guide (Figure 1, Item 9) from control lever body (Figure 1, Item 1).

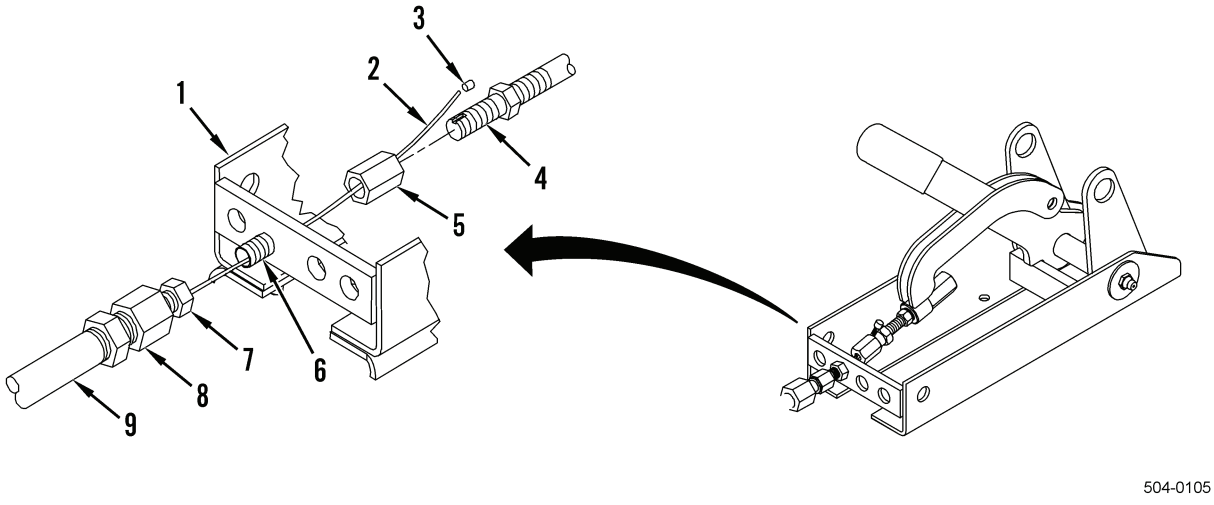


Figure 1. Control Lever Assembly.

REMOVAL – CONTINUED

6. Remove nut (Figure 2, Item 5) and clamp (Figure 2, Item 6) securing cable guide (Figure 2, Item 4) to TRM frame.

CAUTION

Use two wrenches to loosen pipe-cable guide. Failure to comply may result in damage to equipment.

7. Remove and discard tiedown straps to remove harness from cable guide.
8. Use a wrench to hold reducer (Figure 2, Item 3) and remove threaded end of reducer (Figure 2, Item 2) from nipple (Figure 2, Item 1).
9. Remove pipe-cable guide (Figure 2, Item 4) from nipple (Figure 2, Item 1).
10. Loosen nut (Figure 2, Item 7) securing cable (Figure 2, Item 8) to fusible link (Figure 2, Item 10).
11. Remove bushing sleeve (Figure 2, Item 9) from cable (Figure 2, Item 8) and discard.
12. Remove nut (Figure 2, Item 7) from cable (Figure 2, Item 8).
13. Remove cable guide (Figure 2, Item 4) from TRM.

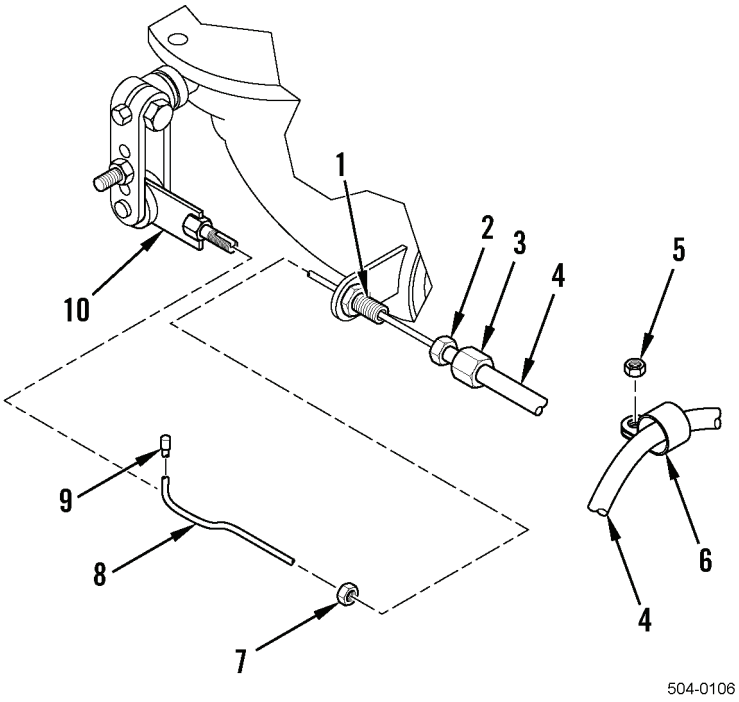


Figure 2. Fusible Link.

END OF TASK

INSTALLATION

NOTE

- When installing cable guides, ensure at least 1 in. to 2 in. of cable extends beyond attachment point on either end to allow for possible adjustment.
- When cutting cables, tape ends to prevent fraying before installing bushing sleeves.
- When installing bushing sleeves, attach them at very ends of cable to allow for possible adjustment.

1. Ensure V1 valve is closed.
2. Position cable guide (Figure 2, Item 4) on TRM.
3. Align one end of pipe-cable guide (Figure 2, Item 4) with nipple (Figure 2, Item 1).
4. Insert end of cable (Figure 2, Item 8) through nut (Figure 2, Item 7) and place in groove of threads in fusible link (Figure 2, Item 10).
5. Install threaded end of reducer (Figure 2, Item 2) on nipple (Figure 2, Item 1).
6. Install nut (Figure 2, Item 7) on fusible link (Figure 2, Item 10).
7. Install bushing sleeve (Figure 2, Item 9) on cable (Figure 2, Item 8).
8. Align pipe-cable guide (Figure 3, Item 9) with nipple (Figure 3, Item 6) of control lever body (Figure 3, Item 1).
9. Insert cable (Figure 3, Item 2) through nipple (Figure 3, Item 6). The end of the cable (Figure 3, Item 2) must protrude past adjusting bolt (Figure 3, Item 4) far enough to install bushing sleeve (Figure 3, Item 3).
10. Install clamping nut (Figure 3, Item 5) on cable (Figure 3, Item 2).
11. Install new bushing sleeve (Figure 3, Item 3) on end of cable (Figure 3, Item 2).
12. Position cable (Figure 3, Item 2) in groove of adjusting bolt (Figure 3, Item 4).
13. Use a wrench to hold nut (Figure 3, Item 7) and attach union (Figure 3, Item 8) to nipple (Figure 3, Item 6). Tighten union (Figure 3, Item 8).
14. Install clamping nut (Figure 3, Item 5) on adjusting bolt (Figure 3, Item 4) to secure cable (Figure 3, Item 2). Tighten clamping nut (Figure 3, Item 5).
15. Remove excess cable (Figure 3, Item 2).
16. Secure cable guide (Figure 2, Item 4) to TRM frame with clamp (Figure 2, Item 6) and nut (Figure 2, Item 5).

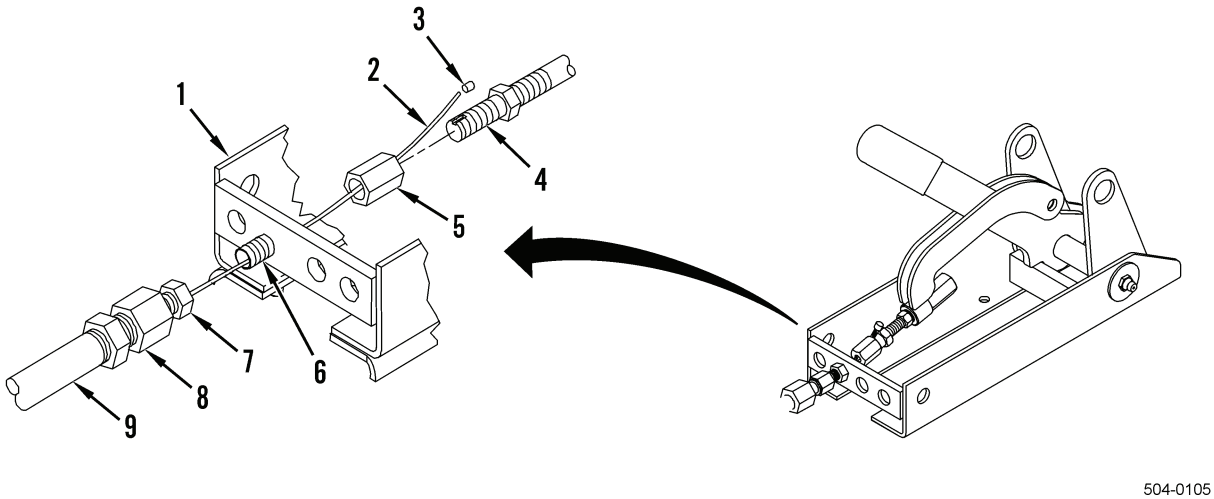


Figure 3. Control Lever Assembly.

INSTALLATION – CONTINUED

17. Install new tiedown straps.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V2 VALVE CABLE GUIDE REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Compression tool, multidiameter (WP 0182, Item 2)
Cutter, bolt lightweight, 24 in. (WP 0182, Item 5)

Materials/Parts

Sleeve, bushing (WP 0159, Item 6)
Sleeve, bushing (WP 0163, Item 2)

Personnel Required

Two

References

WP 0159
WP 0163

Equipment Condition

TRM shut down (TM 10-4930-370-10)
TRM drained (TM 10-4930-370-10)
TRM mounted on PLS trailer (TM 10-4930-370-10)

REMOVAL

1. Remove clamping nut (Figure 1, Item 5) from adjusting bolt (Figure 1, Item 4).
2. Remove bushing sleeve (Figure 1, Item 3) from cable (Figure 1, Item 2) and discard.
3. Remove clamping nut (Figure 1, Item 5) from cable (Figure 1, Item 2).
4. Use a wrench to hold nut (Figure 1, Item 7) and remove union (Figure 1, Item 8) from nut (Figure 1, Item 7).
5. Remove cable guide (Figure 1, Item 9) away from control lever body (Figure 1, Item 1).
6. Remove nut (Figure 1, Item 7) and nipple (Figure 1, Item 6) from control lever body (Figure 1, Item 1).

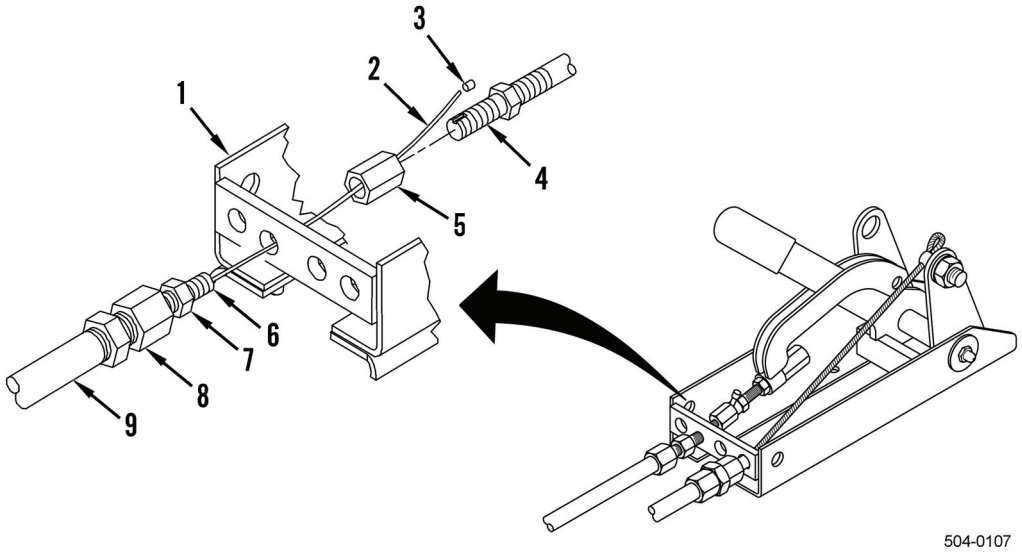


Figure 1. Control Lever Assembly.

REMOVAL – CONTINUED

7. Remove nuts (Figure 2, Item 9) and clamp (Figure 2, Item 1) securing cable (Figure 2, Item 7) to valve handle (Figure 2, Item 2).
8. Remove bushing sleeve (Figure 2, Item 8) from cable (Figure 2, Item 7) and discard.
9. Use a wrench to hold reducer (Figure 2, Item 4) and remove threaded end of reducer (Figure 2, Item 3) from threaded bushing (Figure 2, Item 6).
10. Remove cable guide (Figure 2, Item 5) from threaded bushing (Figure 2, Item 6).

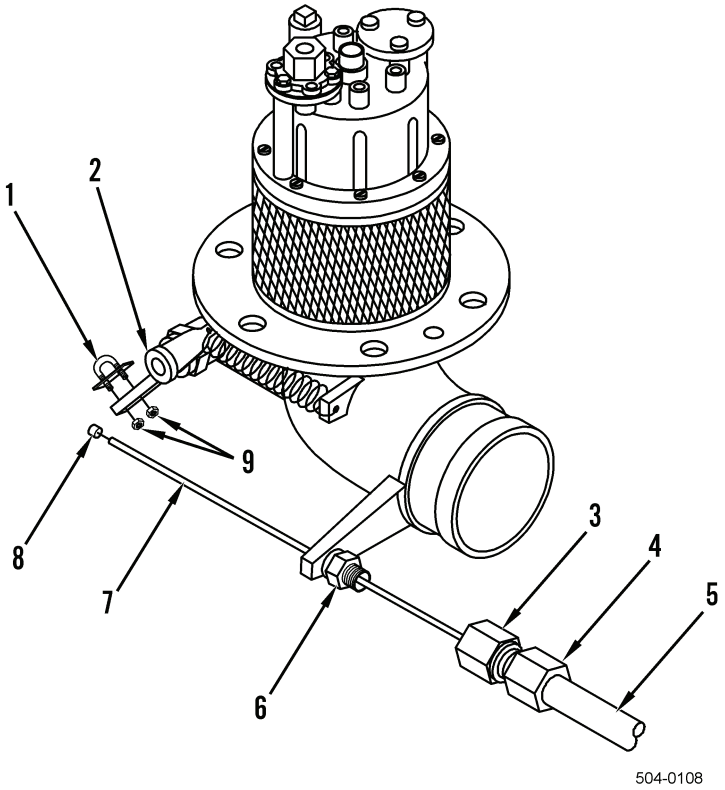


Figure 2. V2 Valve.

END OF TASK

INSTALLATION

NOTE

- When installing cable guides, ensure at least 1 in. to 2 in. of cable extends beyond attachment point on either end to allow for possible adjustment.
- When cutting cables, tape ends to prevent fraying before installing bushing sleeves.
- When installing bushing sleeves, attach them at very ends of cable to allow for possible adjustment.

1. Align cable guide (Figure 2, Item 5) with threaded bushing (Figure 2, Item 6).
2. Insert end of cable (Figure 2, Item 7) through threaded bushing (Figure 2, Item 6) and cable clamp (Figure 2, Item 1). Move end of cable (Figure 2, Item 7) past cable clamp (Figure 2, Item 1) far enough to install bushing sleeve (Figure 2, Item 8).

INSTALLATION – CONTINUED

3. Use a wrench to hold reducer (Figure 2, Item 4) and tighten threaded end of reducer (Figure 2, Item 3) to threaded bushing (Figure 2, Item 6).
4. Install new bushing sleeve (Figure 2, Item 8) on cable (Figure 2, Item 7).
5. Install nuts (Figure 2, Item 9) onto clamp (Figure 2, Item 1) securing cable (Figure 2, Item 7) to valve handle (Figure 2, Item 2).
6. Break union (Figure 3, Item 8) on cable guide (Figure 3, Item 9) and remove nipple (Figure 3, Item 6), nut (Figure 3, Item 7) and union (Figure 3, Item 8).
7. Install nipple (Figure 3, Item 6) and nut (Figure 3, Item 7) and union (Figure 3, Item 8) on control lever body (Figure 3, Item 1).
8. Insert cable (Figure 3, Item 2) through union (Figure 3, Item 8), nut (Figure 3, Item 7), and control lever body (Figure 3, Item 1) and attach union (Figure 3, Item 8) to nut (Figure 3, Item 7).
9. Install clamping nut (Figure 3, Item 5) on cable (Figure 3, Item 2).
10. Position cable (Figure 3, Item 2) in groove of adjusting bolt (Figure 3, Item 4).
11. Install clamping nut (Figure 3, Item 5) on adjusting bolt (Figure 3, Item 4) to secure cable (Figure 3, Item 2). Tighten clamping nut (Figure 3, Item 5).
12. Install new bushing sleeve (Figure 3, Item 3) on end of cable (Figure 3, Item 2).
13. Open V2 valve to verify correct operation.

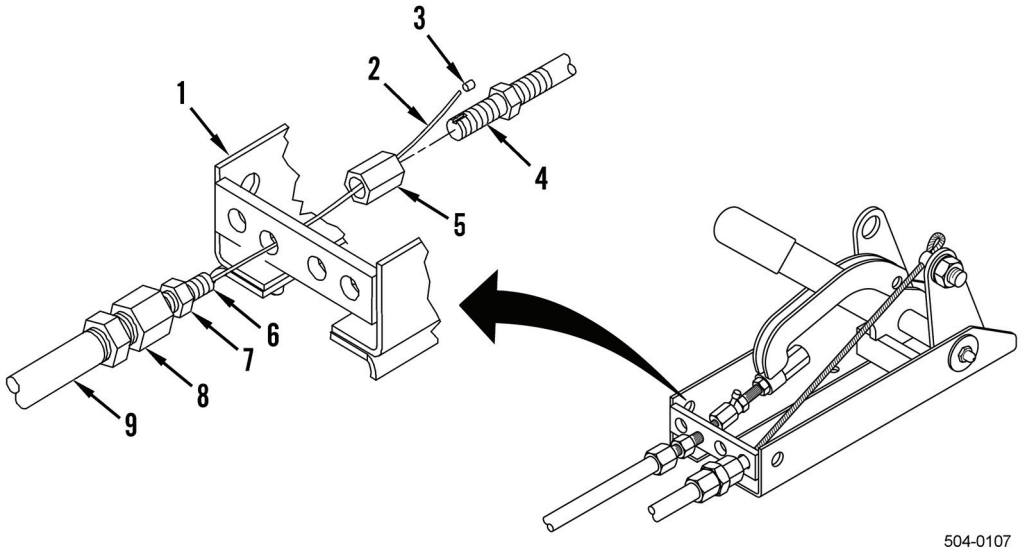


Figure 3. Control Lever Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

LEFT HAND EMERGENCY STOP CABLE GUIDE REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Compression tool, multidiameter (WP 0182, Item 2)
Cutter, bolt lightweight, 24 in. (WP 0182, Item 5)

Materials/Parts

Bushing, sleeve (WP 0163, Item 2)
Bushing, sleeve (WP 0164, Item 3)
Nut, self-locking, hexagon (WP 0163, Item 8) Qty: 2

References

WP 0163
WP 0164

Equipment Condition

Cable tray removed (WP 0090)

REMOVAL

1. Loosen four screws (Figure 1, Item 7) securing two-piece cable clamp (Figure 1, Item 1) to cable (Figure 1, Item 6).
2. Remove bushing sleeve (Figure 1, Item 8) from cable (Figure 1, Item 6) and discard.
3. Use a wrench to hold reducer (Figure 1, Item 3) and unscrew threaded end of reducer (Figure 1, Item 4) from nipple (Figure 1, Item 5), and remove cable guide (Figure 1, Item 2).

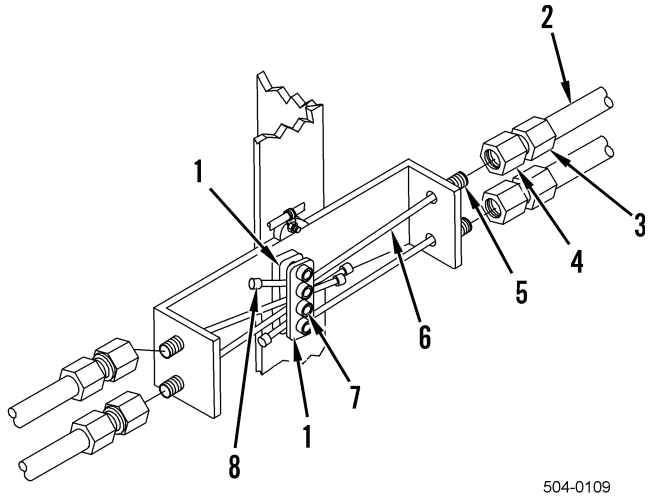


Figure 1. Emergency Cable Guide Connection.

REMOVAL – CONTINUED

4. Remove two locknuts (Figure 2, Item 1) and clamps (Figure 2, Item 2) securing cable guide (Figure 2, Item 3). Discard locknuts.

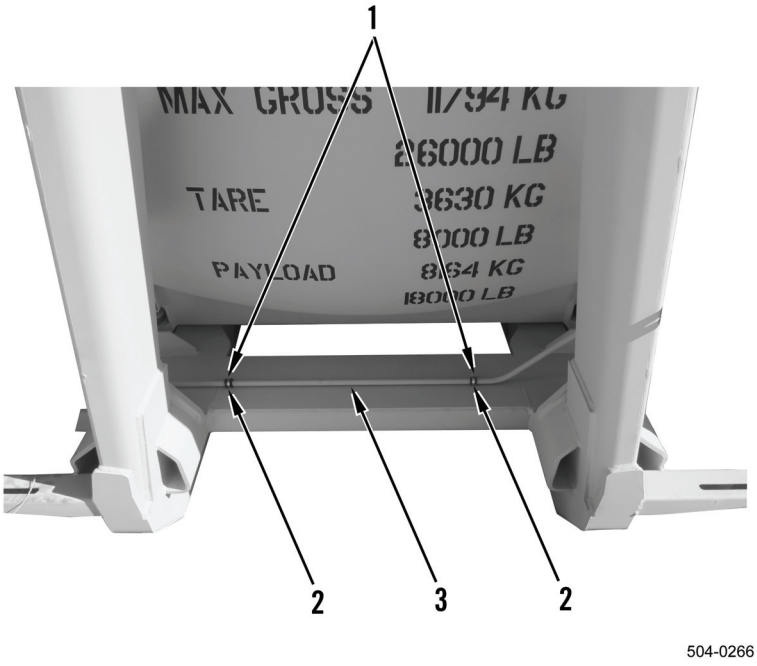


Figure 2. Cable Guide.

5. Loosen two nuts (Figure 3, Item 8) securing two-piece cable clamp (Figure 3, Item 2) and cable (Figure 3, Item 7) to emergency stop handle (Figure 3, Item 1).
6. Remove bushing sleeve (Figure 3, Item 3) from cable (Figure 3, Item 7) and discard.

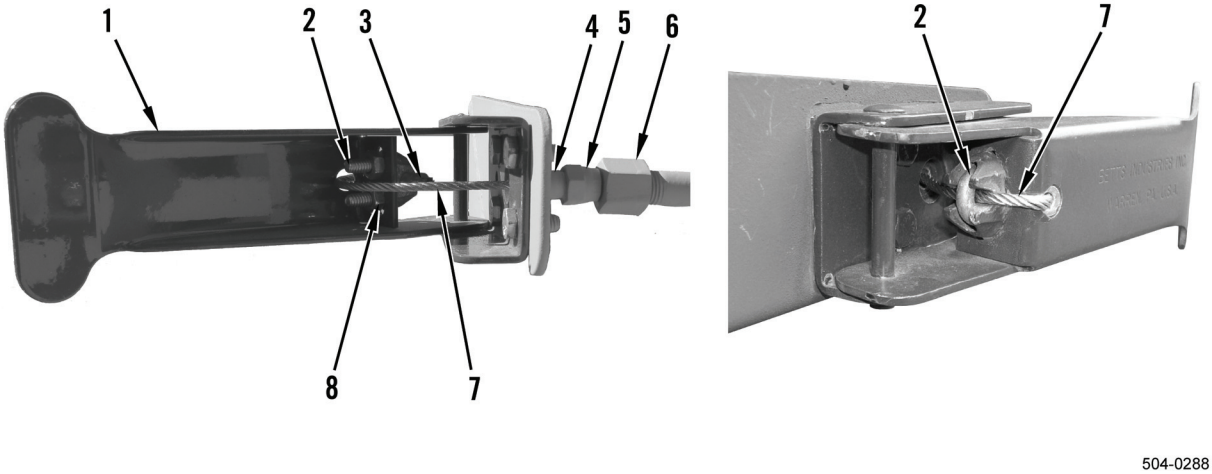


Figure 3. Emergency Stop.

REMOVAL – CONTINUED

7. Use a wrench to hold reducer (Figure 3, Item 6) and remove threaded end of reducer (Figure 3, Item 5) from nipple (Figure 3, Item 4).
8. Remove cable (Figure 3, Item 7) from nipple (Figure 3, Item 4).
9. Remove cable guide (Figure 2, Item 3) from TRM.

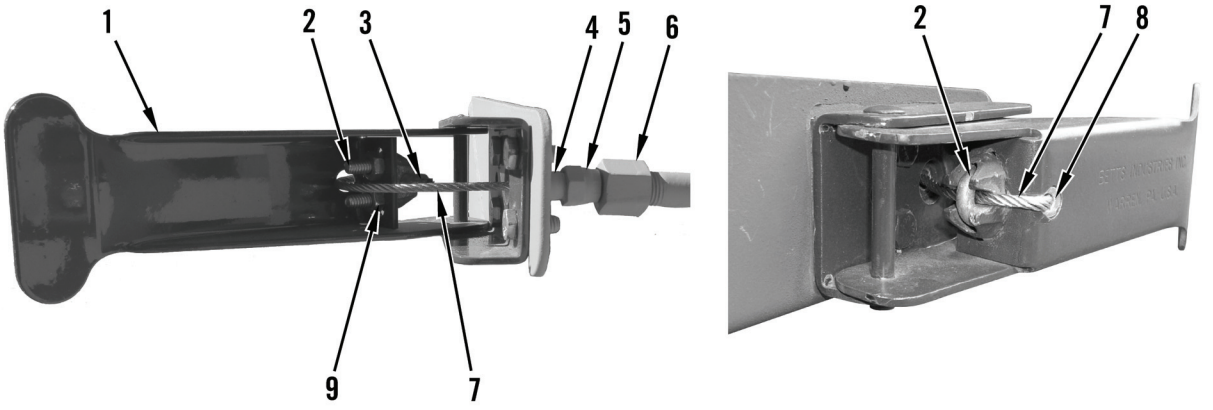
END OF TASK

INSTALLATION

NOTE

- When installing cable guides, ensure at least 1 in. to 2 in. of cable extends beyond attachment point on either end to allow for possible adjustment.
- When cutting cables, tape ends to prevent fraying before installing bushing sleeves.
- When installing bushing sleeves, attach them at very ends of cable to allow for possible adjustment.

1. Ensure V1 valve is closed.
2. Position cable guide (Figure 2, Item 3) on TRM.
3. Install end of new cable (Figure 4, Item 7) through nipple (Figure 4, Item 4). Move end of cable (Figure 4, Item 7) out hole in emergency stop handle (Figure 4, Item 8).
4. Install bushing stop (Figure 4, Item 3) on cable (Figure 4, Item 7).
5. Install two-piece cable clamp (Figure 4, Item 2) on cable (Figure 4, Item 7). Position two-piece cable clamp (Figure 4, Item 2) on handle (Figure 4, Item 1).
6. Secure two-piece cable clamp (Figure 4, Item 2) to handle (Figure 4, Item 1) with two nuts (Figure 4, Item 9).
7. Install reducer (Figure 4, Item 5) on nipple (Figure 4, Item 4).
8. Use a wrench to hold reducer (Figure 4, Item 6) and tighten reducer (Figure 4, Item 5) to nipple (Figure 4, Item 4).



504-0292

Figure 4. Emergency Stop.

INSTALLATION – CONTINUED

9. Thread cable (Figure 5, Item 6) through nipple (Figure 5, Item 5) and two-piece cable clamp (Figure 5, Item 1). Move end of new cable (Figure 5, Item 6) out of two-piece cable clamp (Figure 5, Item 1) far enough to install bushing sleeve (Figure 5, Item 8).
10. Install cable guide (Figure 5, Item 2) on nipple (Figure 5, Item 5).
11. Use a wrench to hold reducer (Figure 5, Item 3) and tighten threaded reducer end (Figure 5, Item 4).

NOTE

To adjust cables, open V1 and V2 valves.

12. Install new bushing sleeve (Figure 5, Item 8) on new cable (Figure 5, Item 6).
13. Install two clamps (Figure 2, Item 2) and new locknuts (Figure 2, Item 1) securing cable guide (Figure 2, Item 3).
14. Hold two piece cable clamp (Figure 5, Item 1), position cable (Figure 5, Item 6) and tighten four screws (Figure 5, Item 7) on two-piece cable clamp (Figure 5, Item 1) securing cable (Figure 5, Item 6).

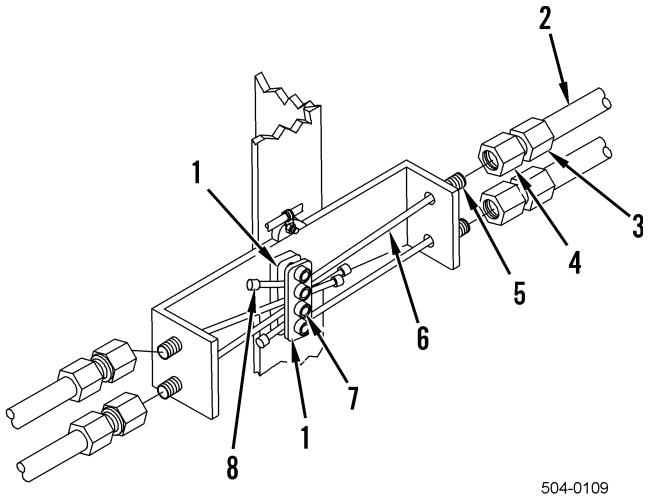


Figure 5. Emergency Cable Guide Connection.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cable tray (WP 0090).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

RIGHT HAND EMERGENCY STOP CABLE GUIDE REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Compression tool, multidiameter (WP 0182, Item 2)
Cutter, bolt lightweight, 24 in. (WP 0182, Item 5)

Materials/Parts

Bushing, sleeve (WP 0163, Item 2)
Bushing, sleeve (WP 0164, Item 3)

References

WP 0163

Equipment Condition

Cable tray removed (WP 0090)

REMOVAL

1. Loosen four screws (Figure 1, Item 7) securing two-piece cable clamp (Figure 1, Item 1) to cables (Figure 1, Item 6).
2. Remove bushing sleeve (Figure 1, Item 8) from cable (Figure 1, Item 6) and discard.
3. Use a wrench to hold reducer (Figure 1, Item 3), and unscrew threaded end of reducer (Figure 1, Item 4) from nipple (Figure 1, Item 5), and remove cable guide (Figure 1, Item 2).

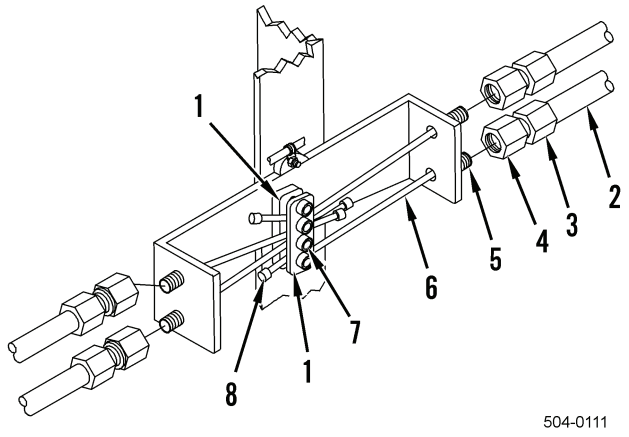


Figure 1. Emergency Stop Cable Guide Connection.

REMOVAL – CONTINUED

4. Loosen two nuts (Figure 2, Item 2) securing two-piece cable clamp (Figure 2, Item 3) and cable (Figure 2, Item 9) to remote control assembly handle (Figure 2, Item 3).
5. Remove bushing sleeve (Figure 2, Item 1) from cable (Figure 2, Item 9) and discard.
6. Use a wrench to hold reducer (Figure 2, Item 6) and remove threaded end of reducer (Figure 2, Item 7) from nipple (Figure 2, Item 8).
7. Remove cable (Figure 2, Item 9) from nipple (Figure 2, Item 8) and hole (Figure 2, Item 10).
8. Remove cable guide (Figure 2, Item 5) from TRM.

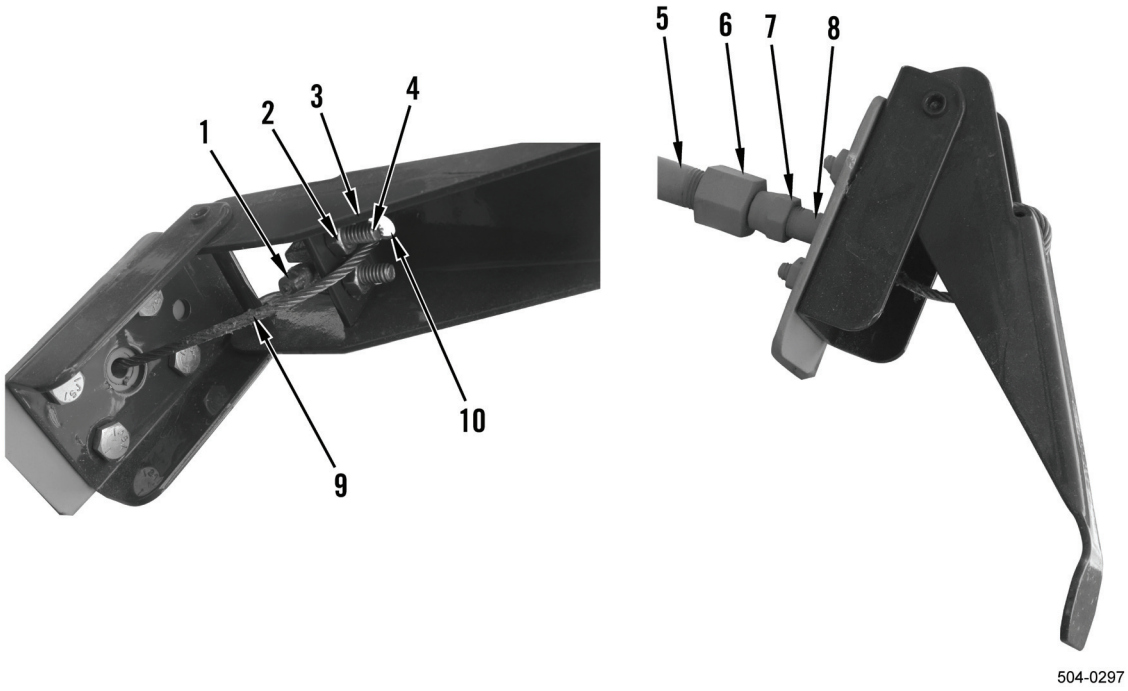


Figure 2. Emergency Stop.

END OF TASK

INSTALLATION

NOTE

- When installing cable guides, ensure at least 1 in. to 2 in. of cable extends beyond attachment point on either end to allow for possible adjustment.
- When cutting cables, tape ends to prevent fraying before installing bushing sleeves.
- When installing bushing sleeves, attach them at very ends of cable to allow for possible adjustment.

1. Ensure V1 valve is closed.
2. Position cable guide (Figure 2, Item 5) on TRM.
3. Install end of new cable (Figure 2, Item 9) through nipple (Figure 2, Item 8). Move end of cable (Figure 2, Item 9) out hole (Figure 2, Item 10) of remote control assembly handle (Figure 2, Item 3).
4. Install bushing sleeve (Figure 2, Item 1) on cable (Figure 2, Item 9).

INSTALLATION – CONTINUED

5. Install two-piece cable clamp (Figure 2, Item 4) on cable (Figure 2, Item 9). Position two-piece cable clamp (Figure 2, Item 4) on handle (Figure 2, Item 3).
6. Secure two-piece cable clamp (Figure 2, Item 4) to handle (Figure 2, Item 3) with two nuts (Figure 2, Item 2).
7. Install reducer (Figure 2, Item 7) on nipple (Figure 2, Item 8).
8. Use a wrench to hold reducer (Figure 2, Item 6) and tighten reducer (Figure 2, Item 7) to nipple (Figure 2, Item 8).
9. Thread new cable (Figure 3, Item 6) through nipple (Figure 3, Item 5) and two-piece cable clamp (Figure 3, Item 1). Move end of new cable (Figure 3, Item 6) out of two-piece cable clamp (Figure 3, Item 1) far enough to install bushing sleeve (Figure 3, Item 8).
10. Install cable guide (Figure 3, Item 2) on nipple (Figure 3, Item 5).
11. Use a wrench to hold reducer (Figure 3, Item 3) and tighten threaded reducer end (Figure 3, Item 4).

NOTE

To adjust cables, open V1 and V2 valves.

12. Install new bushing sleeve (Figure 3, Item 8) on new cable (Figure 3, Item 6).
13. Position cable (Figure 3, Item 6) and tighten four screws (Figure 3, Item 7) on two-piece cable clamp (Figure 3, Item 1) securing cables (Figure 3, Item 6).

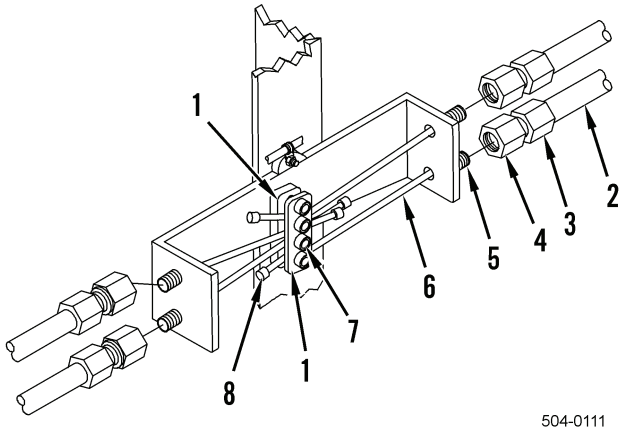


Figure 3. Emergency Stop Cable Guide Connection.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cable tray (WP 0090).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

V1 AND V2 EMERGENCY STOP CABLE GUIDE REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Compression tool, multidiameter (WP 0182, Item 2)
Cutter, bolt lightweight, 24 in. (WP 0182, Item 5)

Materials/Parts

Strap, tiedown (WP 0181, Item 22)
Nut, self-locking, hexagon (WP 0163 Item 8) Qty: 4
Bushing, sleeve (WP 0163, Item 2)
Bushing, sleeve (WP 0164, Item 3)
Washer, lock (WP 0162, Item 5)

Personnel Required

Two

References

WP 0161
WP 0162
WP 0163

Equipment Condition

TRM drained (TM 10-4930-370-10)
TRM mounted on PLS trailer (TM 10-4930-370-10)
Cable tray removed (WP 0090)

REMOVAL

NOTE

- Removal and installation procedures apply to both V1 and V2 manual lever assemblies.
- V1 cable guide has four locknuts and clamps; V2 cable guide has two locknuts and clamps.
- Coupling on bottom load valve piping can be removed to access locknut and clamp.

1. Remove locknuts (Figure 1, Item 1) and clamps (Figure 1, Item 2) from cable guide (Figure 1, Item 3). Discard locknuts.
2. Remove tiedown straps (Figure 1, Item 4) and discard.

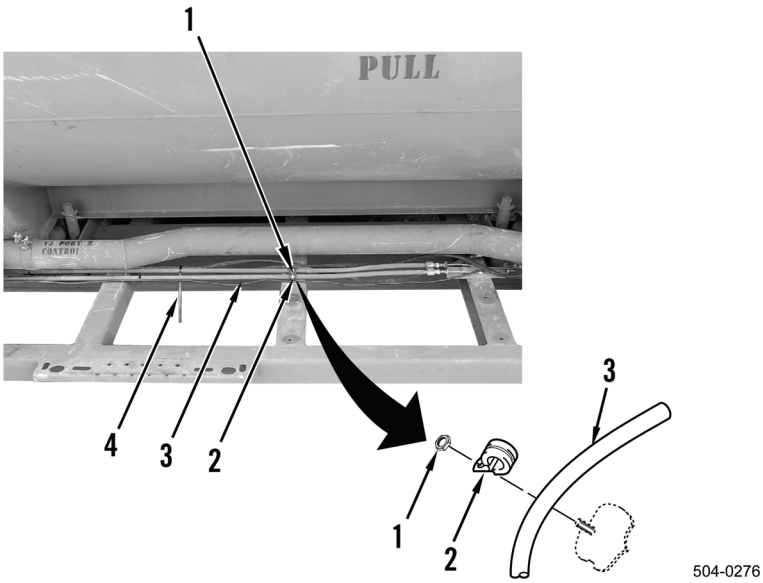


Figure 1. Cable Guides.

REMOVAL – CONTINUED

3. Loosen four screws (Figure 2, Item 3) securing two-piece cable clamp (Figure 2, Item 4) to cable (Figure 2, Item 5).
4. Remove sleeve bushing (Figure 2, Item 2) from cable (Figure 2, Item 5) and discard.
5. Use a wrench to hold reducer (Figure 2, Item 7), unscrew threaded end of reducer (Figure 2, Item 6) from nipple (Figure 2, Item 1), and disconnect cable guide (Figure 2, Item 8).

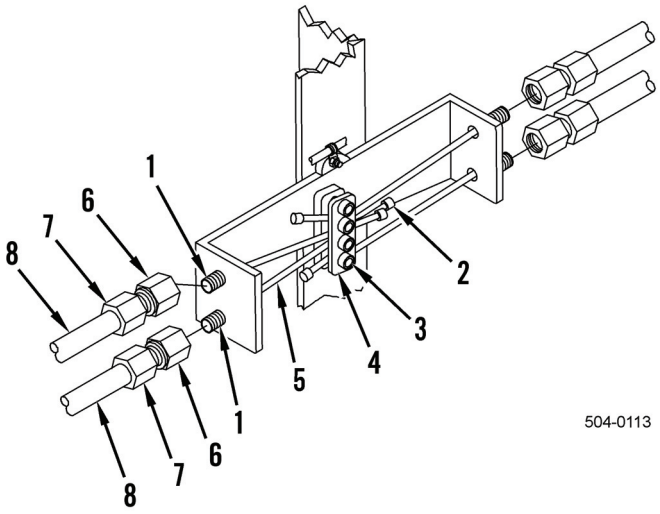


Figure 2. Emergency Stop Cable Guide Connection.

6. Remove jamnut (Figure 3, Item 8), lockwasher (Figure 3, Item 7) and cable clamp bushing (Figure 3, Item 6) from trip cable clamp (Figure 3, Item 2) on control lever (Figure 3, Item 5). Discard lockwasher.
7. Remove sleeve bushing (Figure 3, Item 4) from cable (Figure 3, Item 3) and discard.
8. Remove cable (Figure 3, Item 3) from trip cable clamp (Figure 3, Item 2).
9. Use a wrench to hold nut (Figure 3, Item 10) and remove union (Figure 3, Item 11) from nipple (Figure 3, Item 9) from control lever assembly (Figure 3, Item 1).
10. Remove one end of cable guide (Figure 3, Item 12) and other end of cable guide (Figure 3, Item 12).

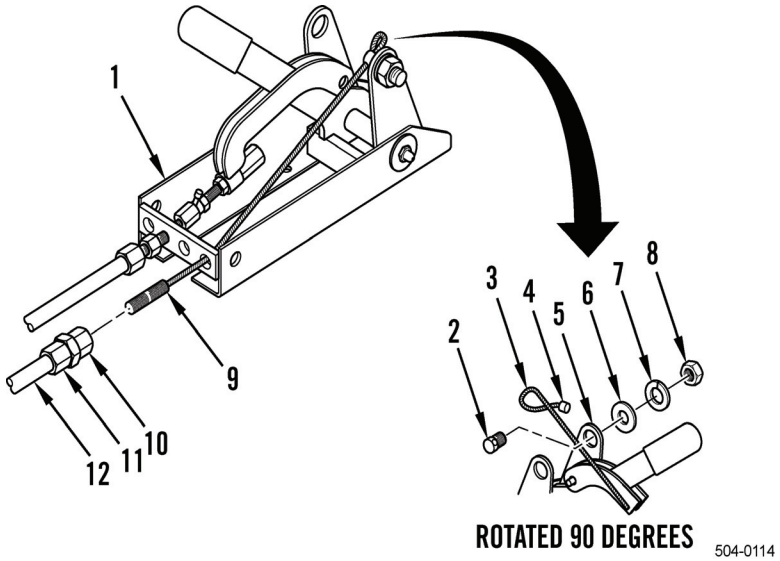


Figure 3. Control Lever Assembly.

END OF TASK

INSTALLATION

NOTE

- When installing cable guides, ensure at least 1 in. to 2 in. of cable extends beyond attachment point on either end to allow for possible adjustment.
- When cutting cables, tape ends to prevent fraying before installing sleeve bushings.
- When installing sleeve bushings, attach them at very ends of cable to allow for possible adjustment.

1. Ensure V1 valve is closed.
2. Position both ends of cable guide (Figure 2, Item 8 and Figure 3, Item 12) on TRM frame.
3. Thread new cable (Figure 3, Item 3) through nipple (Figure 3, Item 9) and two-piece cable clamp (Figure 3, Item 2). The end of cable (Figure 3, Item 3) must protrude out of two-piece cable clamp (Figure 3, Item 2) far enough to install sleeve bushing (Figure 3, Item 4).
4. Disconnect union (Figure 3, Item 11) on cable guide (Figure 3, Item 12) and remove nipple (Figure 3, Item 9) and nut (Figure 3, Item 10).
5. Install nipple (Figure 3, Item 9) and nut (Figure 3, Item 10) on control lever assembly (Figure 3, Item 1).
6. Thread new cable (Figure 3, Item 3) through control lever assembly (Figure 3, Item 1) and trip cable clamp (Figure 3, Item 2). Loop end of cable (Figure 3, Item 3) back through trip cable clamp (Figure 3, Item 2) and protrude out far enough to install sleeve bushing (Figure 3, Item 4).
7. Install new sleeve bushing (Figure 3, Item 4) on cable (Figure 3, Item 3) and crimp.
8. Install cable clamp bushing (Figure 3, Item 6), new lockwasher (Figure 3, Item 7), and tighten jamnut (Figure 3, Item 8) to trip cable clamp (Figure 3, Item 2).
9. Install cable (Figure 2, Item 8) on nipple (Figure 2, Item 1).
10. Use a wrench to hold reducer (Figure 2, Item 7) and tighten threaded end of reducer (Figure 2, Item 6).
11. Open V1 and V2 valves.
12. Install new sleeve bushing (Figure 2, Item 2) on new cable (Figure 2, Item 5).
13. Adjust cable (Figure 2, Item 5) and tighten four screws (Figure 2, Item 3) on two-piece cable clamp (Figure 2, Item 4) securing cable (Figure 2, Item 5).

INSTALLATION – CONTINUED

14. Install clamps (Figure 4, Item 2) and new locknuts (Figure 4, Item 1) on cable guide (Figure 4, Item 3).

NOTE

If removed, install coupling on bottom load valve piping.

15. Install new tiedown straps (Figure 4, Item 4).

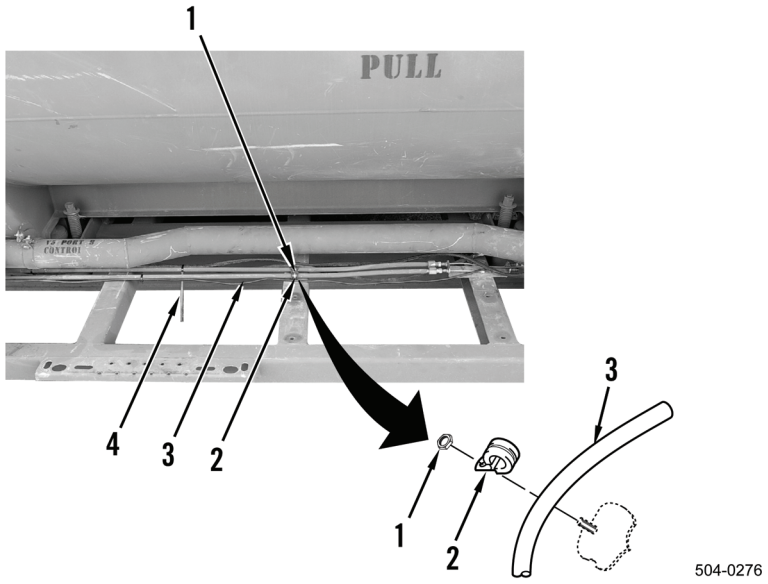


Figure 4. Cable Guides.

END OF TASK

FOLLOW-ON MAINTENANCE

Install cable tray (WP 0090).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

COMPRESSION SPRINGS REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Crowfoot attachment, socket wrench (WP 0182, Item 4)

Materials/Parts

Nut, self-locking, hexagon (WP 0165, Item 1)
Qty: 4

Personnel Required

Two

References

WP 0165

Equipment Condition

TRM mounted on PLS trailer (TM 10-4930-370-10)
Cable tray removed (WP 0090)
Hose trough assembly removed (WP 0112)

WARNING

Wear eye protection working with parts under pressure or tension. Failure to comply may result in an eye injury.

CAUTION

Use two wrenches when removing locknuts from stud. Failure to comply may result in damage to equipment.

NOTE

Removal of components varies depending on which helical compression spring needs to be replaced.

REMOVAL

1. Position first wrench on locknut (Figure 1, Item 7) and hold locknut.
2. Remove locknut (Figure 1, Item 8) from stud (Figure 1, Item 5) with assistance. Discard locknut.
3. Have assistant hold locknut (Figure 1, Item 2) and remove locknut (Figure 1, Item 7) from stud (Figure 1, Item 5). Discard locknut.
4. Remove stud (Figure 1, Item 5), spring (Figure 1, Item 4), washer (Figure 1, Item 3), and two locknuts (Figure 1, Items 1 and 2) from frame (Figure 1, Item 6).
5. Remove washer (Figure 1, Item 3) and two locknuts (Figure 1, Items 1 and 2) from stud. Discard locknuts.
6. Repeat steps 1 thru 5 for remaining compression springs.

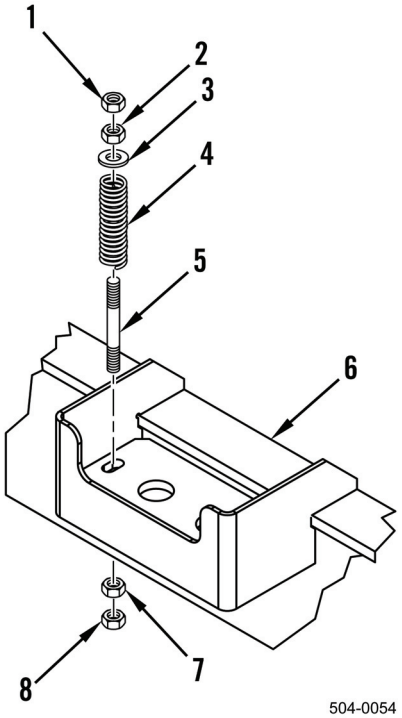


Figure 1. Compression Spring.

END OF TASK

INSTALLATION

1. Install new locknut (Figure 1, Item 2) on stud (Figure 1, Item 5).
2. Install new locknut (Figure 1, Item 1) even with top of stud (Figure 1, Item 5).
3. Install washer (Figure 1, Item 3) and spring (Figure 1, Item 4) on stud (Figure 1, Item 5).
4. Install stud (Figure 1, Item 5) through frame (Figure 1, Item 6).
5. Have assistant hold locknut (Figure 1, Item 2) and install new locknut (Figure 1, Item 7).
6. Install new locknut (Figure 1, Item 8) until even with stud (Figure 1, Item 5) threads.
7. Tighten locknut (Figure 1, Item 1) until locked together with locknut (Figure 1, Item 2).
8. Tighten locknut (Figure 1, Item 8) until locked together with locknut (Figure 1, Item 7).
9. Repeat steps 1 thru 8 for remaining compression springs.

END OF TASK

FOLLOW-ON MAINTENANCE

1. Install hose trough assembly (WP 0112).
2. Install cable tray (WP 0090).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

MANHOLE COVER REPAIR
Removal, Disassembly, Assembly, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Hammer, hand, soft face (WP 0182, Item 8)
Respirator, air filtering (WP 0181, Item 17)

References

WP 0166

Equipment Condition

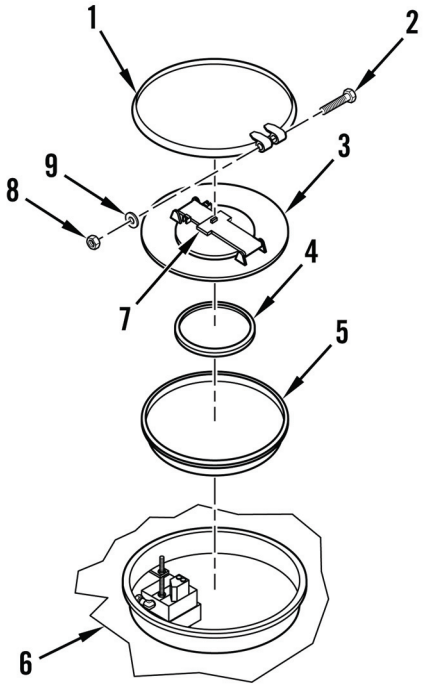
TRM shut down (TM 10-4930-370-10)

WARNING

- Goggles, gloves, and respirator must be worn when working around fuel. Do not smoke, use open flame, make sparks, or create other ignition sources around fuel. Avoid contact with eyes and skin. Avoid prolonged or repeated breathing of vapors and ensure there is adequate ventilation. Always have a fire extinguisher present and available.
- Wet metal surfaces are slippery. Use caution when climbing on tank.
- Ground self and equipment before opening manhole cover to prevent explosion caused by electrostatic charge.
- Due to changes in ambient temperatures, fuel may expand and manhole cover may be under pressure. Open manhole cover slowly.
- Eye protection is required when opening manhole cover.
- Failure to comply may result in injury or death to personnel.

REMOVAL

1. Push down on manhole cover (Figure 1, Item 3), release latch, and slowly open manhole cover to gradually release pressure.
2. Close manhole cover (Figure 1, Item 3).
3. Remove nut (Figure 1, Item 8), washer (Figure 1, Item 9), and bolt (Figure 1, Item 2) from clamping ring (Figure 1, Item 1).
4. Remove clamping ring (Figure 1, Item 1) from manhole cover (Figure 1, Item 3).
5. Remove manhole cover (Figure 1, Item 3) from tank assembly (Figure 1, Item 6).



504-0042

Figure 1. Manhole Cover.

END OF TASK

DISASSEMBLY

1. Open manhole cover latch (Figure 1, Item 7) and remove upper manhole cover preformed packing (Figure 1, Item 4) from manhole cover (Figure 1, Item 3).
2. Remove gasket (Figure 1, Item 5) from manhole cover opening on tank assembly (Figure 1, Item 6).

END OF TASK

ASSEMBLY

1. Place gasket (Figure 1, Item 5) on manhole cover opening on tank assembly (Figure 1, Item 6).
2. Place upper manhole cover preformed packing (Figure 1, Item 4) on manhole cover (Figure 1, Item 3) with flat side up.

END OF TASK

INSTALLATION

1. Position manhole cover (Figure 1, Item 3) on tank assembly (Figure 1, Item 6).
2. Install clamping ring (Figure 1, Item 1) on manhole cover (Figure 1, Item 3) and tank assembly (Figure 1, Item 6).
3. Install bolt (Figure 1, Item 2), washer (Figure 1, Item 9) and nut (Figure 1, Item 8) on clamping ring (Figure 1, Item 1).

NOTE

A rubber mallet can be used to lightly tap manhole cover during tightening of nut.

4. Tighten nut (Figure 1, Item 8) to secure clamping ring (Figure 1, Item 1) to tank assembly (Figure 1, Item 6).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

HOSE TROUGH ASSEMBLY REPAIR
Removal, Disassembly, Assembly, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Drill, battery, rechargable (WP 0182, Item 6)
Drill set, twist (WP 0182, Item 7)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Tool kit, blind (WP 0182, Item 11)

Materials/Parts

Nut, self-locking, hexagon (WP 0167, Item 1) Qty: 4
Rivet (3/16") (WP 0167, Item 5) Qty: 20

Personnel Required

Two

References

WP 0167

Equipment Condition

Ladder and brackets removed (WP 0119)

REMOVAL

1. Remove hoses from hose trough assembly (Figure 1, Item 1).
2. Remove four locknuts (Figure 1, Item 7), bolts (Figure 1, Item 3), and eight washers (Figure 1, Item 4) from hose trough assembly (Figure 1, Item 1). Discard locknuts.
3. Remove two bolts (Figure 1, Item 6) and bracket (Figure 1, Item 5) from rear of TRM frame (Figure 1, Item 2).
4. Remove hose trough assembly (Figure 1, Item 1) from TRM frame (Figure 1, Item 2).

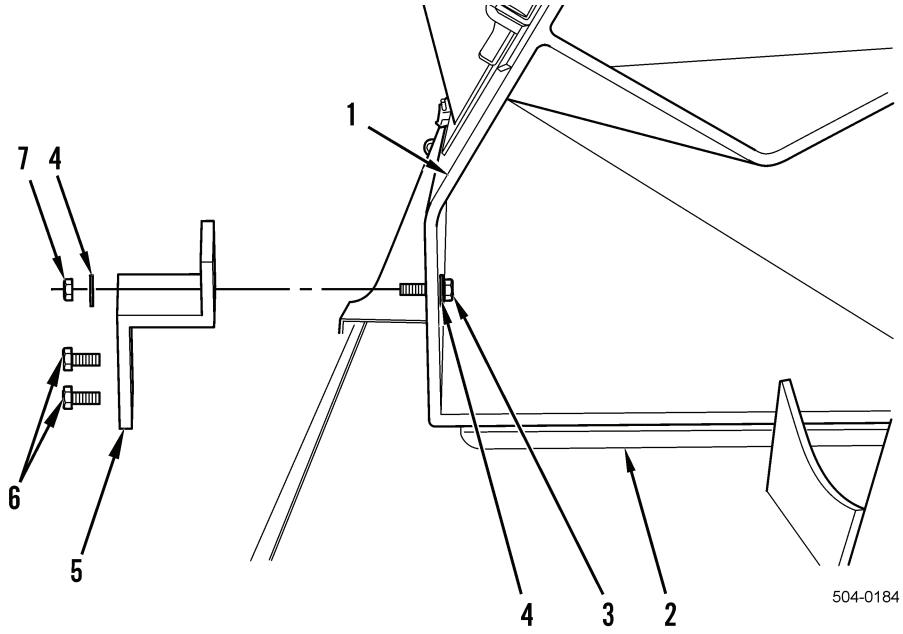


Figure 1. Hose Trough Assembly.

END OF TASK

DISASSEMBLY

WARNING

Wear eye protection when removing rivets. Failure to comply may result in an eye injury.

NOTE

There are four clamping latches on the lower hose trough, two on each end. The procedure for clamping latch and lanyard is the same for the front and rear trough assembly doors. The rear trough assembly door clamping catch is shown in this procedure.

1. Remove eight rivets (Figure 2, Item 13), lanyard (Figure 2, Item 9), and four clamping catches (Figure 2, Item 8) from hose trough assembly (Figure 2, Item 1). Discard rivets.
2. Remove eight rivets (Figure 2, Item 12), lanyard (Figure 2, Item 9), and four clamping catch plates (Figure 2, Item 11) from hose trough assembly door (Figure 2, Item 10). Discard rivets.
3. Remove two rivets (Figure 2, Item 2), lanyard (Figure 2, Item 3), and clamping catch (Figure 2, Item 7) from hose trough assembly (Figure 2, Item 1). Discard rivets.
4. Remove two rivets (Figure 2, Item 4), lanyard (Figure 2, Item 3), and clamping catch plate (Figure 2, Item 5) from hose trough assembly door (Figure 2, Item 6). Discard rivets.

END OF TASK

ASSEMBLY

1. Install clamping catch plate (Figure 2, Item 5), lanyard (Figure 2, Item 3), and two new rivets (Figure 2, Item 4) on hose trough assembly door (Figure 2, Item 6).
2. Install clamping catch (Figure 2, Item 7), lanyard (Figure 2, Item 3), and two new rivets (Figure 2, Item 2) on hose trough assembly (Figure 2, Item 1).

NOTE

There are four clamping latches on the lower hose trough, two on each end. The procedure for clamping latch and lanyard is similar for the front and rear trough assembly doors. The rear trough assembly door clamping catch is shown in this procedure.

3. Install four clamping catch plates (Figure 2, Item 11), lanyard (Figure 2, Item 9), and eight new rivets (Figure 2, Item 12) on hose trough assembly door (Figure 2, Item 10).
4. Install four clamping catches (Figure 2, Item 8) lanyard (Figure 2, Item 9), and eight new rivets (Figure 2, Item 13) on hose trough assembly (Figure 2, Item 1).

ASSEMBLY – CONTINUED

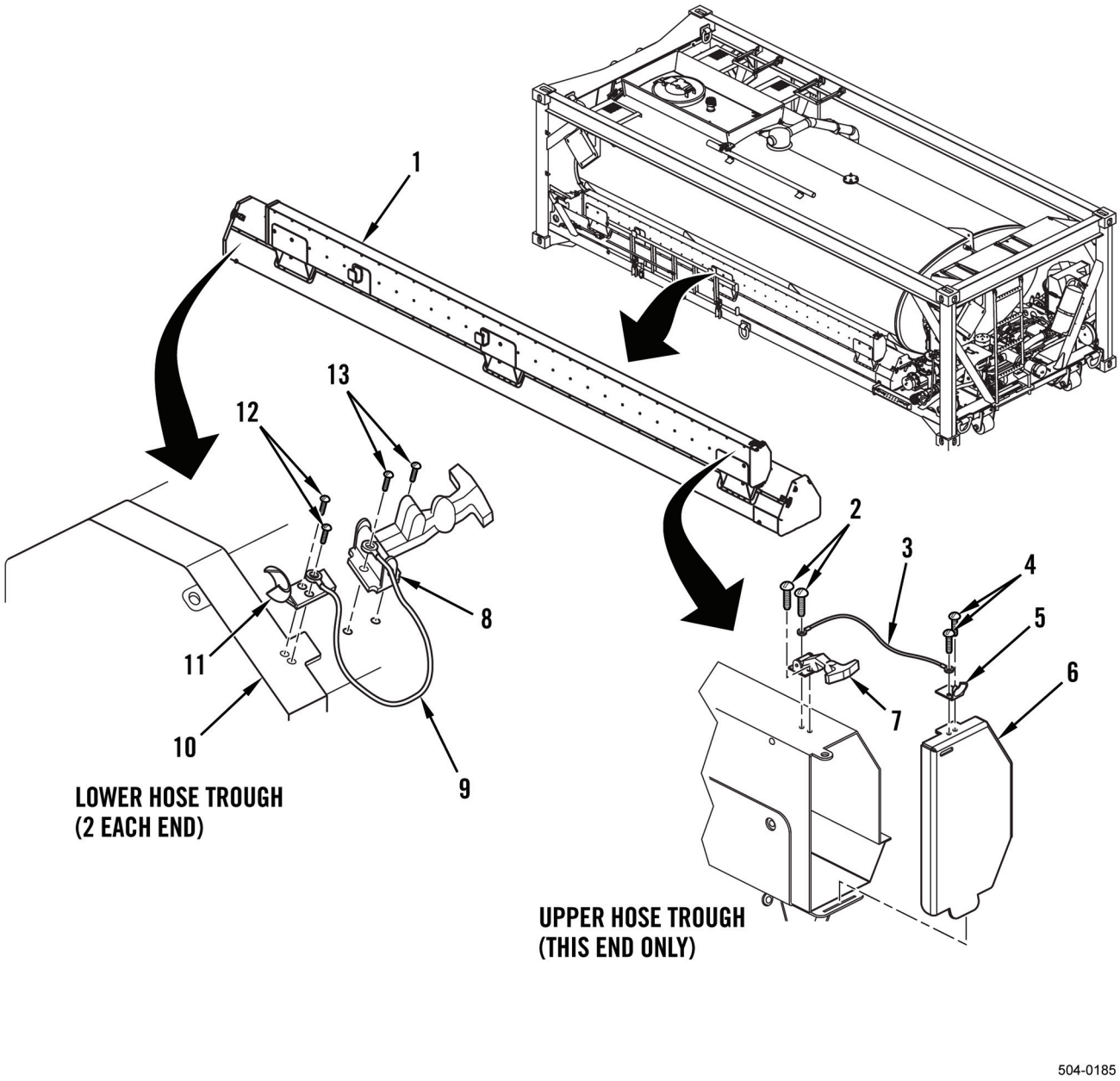


Figure 2. Hose Trough Doors.

END OF TASK

INSTALLATION

1. Install hose trough assembly (Figure 3, Item 1) on TRM frame (Figure 3, Item 2).
2. Install bracket (Figure 3, Item 5) and two bolts (Figure 3, Item 6) to rear of TRM frame (Figure 3, Item 2).
3. Install eight washers (Figure 3, Item 4), four bolts (Figure 3, Item 3), and new locknuts (Figure 3, Item 7) on hose trough assembly (Figure 3, Item 1).
4. Install hoses into hose trough assembly (Figure 3, Item 1).

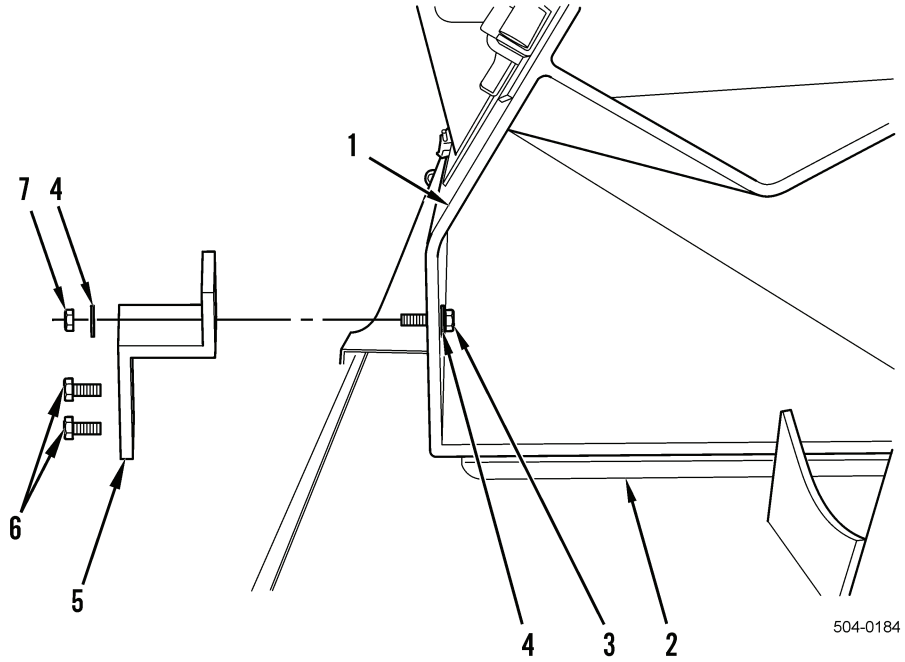


Figure 3. Hose Trough Assembly.

END OF TASK

FOLLOW-ON MAINTENANCE

Install ladder and brackets (WP 0119).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DISCHARGE HOSE REPAIR
Disassembly, Clean, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Compressing tool, splicing sleeve (WP 0182, Item 1)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Cloth, cleaning (WP 0181, Item 4)

Materials/Parts - Continued

Rope, wire (WP 0168, Item 2)
Seal, plain (WP 0168, Item 5)
Seal, plain (WP 0168, Item 8)
Swaging sleeve, wire rope (WP 0168, Item 3) Qty: 2

References

WP 0168

Equipment Condition

TRM shut down (TM 10-4930-370-10)

NOTE

This work package covers all sizes of discharge hoses.

DISASSEMBLY

1. Twist dust cap (Figure 1, Item 8) CCW to remove it from coupling assembly (Figure 1, Item 4).
2. Remove dust cap (Figure 1, Item 8) and dust cap seal (Figure 1, Item 7).
   a. Cut and remove cable (Figure 1, Item 1) and sleeve (Figure 1, Item 2) from dust cap (Figure 1, Item 8).
   b. Remove split ring (Figure 1, Item 3) and cable (Figure 1, Item 1) from coupling assembly (Figure 1, Item 4).
   c. Remove dust cap seal (Figure 1, Item 7) from dust cap (Figure 1, Item 8) and discard.
3. Remove bumper (Figure 1, Item 6) from coupling assembly (Figure 1, Item 4) interface.
4. Remove coupling seal (Figure 1, Item 5) from coupling assembly (Figure 1, Item 4) interface.

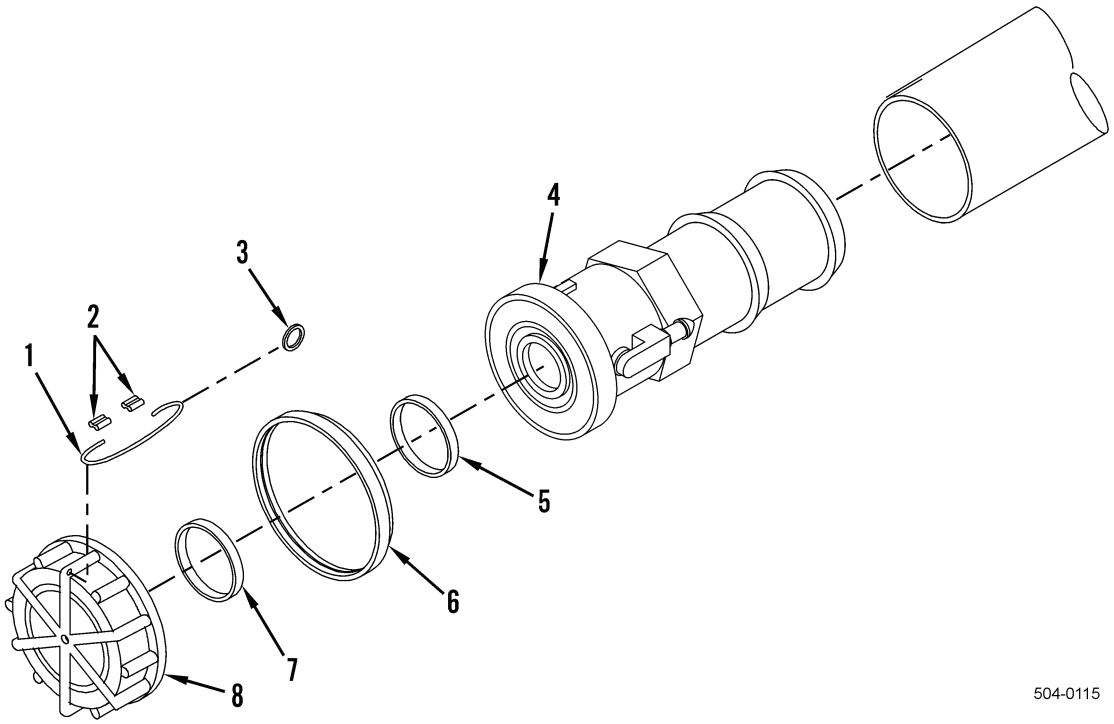
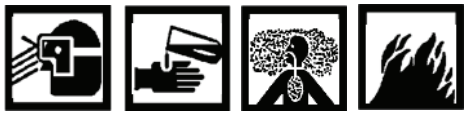


Figure 1. Discharge Hose.

END OF TASK

CLEAN

WARNING



Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles. Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

1. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
2. Allow parts to thoroughly dry.

END OF TASK

ASSEMBLY

1. Install new coupling seal (Figure 1, Item 5) in groove of coupling (Figure 1, Item 4) interface.
2. Install bumper (Figure 1, Item 6) on coupling assembly (Figure 1, Item 2) interface with thin lip seal end facing away from coupling assembly (Figure 1, Item 4).
3. Install dust cap (Figure 1, Item 8) and dust cap seal (Figure 1, Item 7).
   a. Loop one end of new 18 in. (45.72 cm) cable (Figure 1, Item 1) through new sleeve (Figure 1, Item 2), dust cap (Figure 1, Item 8), and back through sleeve (Figure 1, Item 2).
   b. Crimp sleeve (Figure 1, Item 2).
   c. Loop other end of 18 in. (45.72 cm) cable (Figure 1, Item 1) through sleeve (Figure 1, Item 2), split ring (Figure 1, Item 3), and back through sleeve (Figure 1, Item 2).
   d. Install split ring (Figure 1, Item 3) on coupling assembly (Figure 1, Item 4).
   e. Crimp sleeve (Figure 1, Item 2).
   f. Install new seal (Figure 1, Item 7) on dust cap (Figure 1, Item 8).
   g. Twist dust cap (Figure 1, Item 8) CW until it locks on coupling assembly (Figure 1, Item 4).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

SUCTION HOSE REPAIR
Disassembly, Clean, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Pan, drip, 6.5 gal. capacity (WP 0181, Item 14)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Cloth, cleaning (WP 0181, Item 4)

References

WP 0169

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

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DISASSEMBLY

1. Place drip pan under male and female camlock connectors (Figure 1, Items 2 and 14).
2. Pull out camlock levers (Figure 1, Item 5).
3. Remove dust cap (Figure 1, Item 4) from male camlock connector coupling half (Figure 1, Item 2).
4. Pull out camlock levers (Figure 1, Item 1).
5. Remove dust plug (Figure 1, Item 12) from female camlock connector coupling half (Figure 1, Item 14).
6. Remove gaskets (Figure 1, Items 3 and 13) from female camlock connector coupling half (Figure 1, Item 14) and dust cap (Figure 1, Item 4).
7. Remove split ring (Figure 1, Item 6) from dust cap (Figure 1, Item 4).
8. Remove split ring (Figure 1, Item 6) from chain (Figure 1, Item 7).
9. Remove split ring (Figure 1, Item 8) from male camlock connector coupling half (Figure 1, Item 2).
10. Remove split ring (Figure 1, Item 8) from chain (Figure 1, Item 7).
11. Remove split ring (Figure 1, Item 9) from female camlock connector coupling half (Figure 1, Item 14).
12. Remove split ring (Figure 1, Item 9) from chain (Figure 1, Item 10).
13. Remove spit ring (Figure 1, Item 11) from dust plug (Figure 1, Item 12).
14. Remove split ring (Figure 1, Item 11) from chain (Figure 1, Item 10).

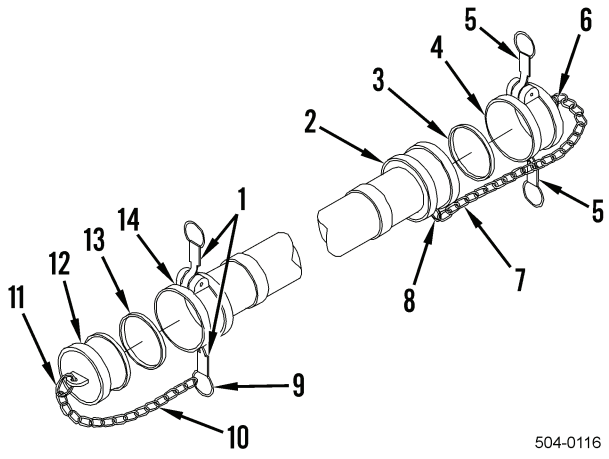

Figure 1. Suction Hose.

END OF TASK

CLEAN

WARNING

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1. Place drip pan under male and female camlock connectors.
2. Use solvent cleaning compound and cleaning cloth to remove debris from components.
3. Allow components to air dry.

END OF TASK

ASSEMBLY

1. Install split ring (Figure 1, Item 11) on chain (Figure 1, Item 10).
2. Install split ring (Figure 1, Item 11) on dust plug (Figure 1, Item 12).
3. Install split ring (Figure 1, Item 9) on chain (Figure 1, Item 10).
4. Install split ring (Figure 1, Item 9) on female camlock connector coupling half (Figure 1, Item 14).
5. Install split ring (Figure 1, Item 8) on chain (Figure 1, Item 7).
6. Install split ring (Figure 1, Item 8) on male camlock connector coupling half (Figure 1, Item 2).
7. Install split ring (Figure 1, Item 6) on chain (Figure 1, Item 7).
8. Install split ring (Figure 1, Item 6) on dust cap (Figure 1, Item 4).
9. Install gaskets (Figure 1, Items 3 and 13) in dust cap (Figure 1, Item 4) and female camlock connector coupling half (Figure 1, Item 14).
10. Install dust cap (Figure 1, Item 4) on male camlock connector coupling half (Figure 1, Item 2).
11. Push in camlock levers (Figure 1, Item 5).
12. Install dust plug (Figure 1, Item 12) in female camlock connector coupling half (Figure 1, Item 14).
13. Push in camlock levers (Figure 1, Item 1).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CAMLOCK ADAPTER REPAIR
Disassembly, Cleaning, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Compression tool, multidiameter (WP 0182, Item 2)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Cloth, cleaning (WP 0181, Item 4)

Materials/Parts - Continued

Bushing, sleeve (WP 0170, Item 13) Qty: 4
Gasket (WP 0170, Item 6) Qty: 4
Rope, wire (WP 0170, Item 12) Qty: 2
Nut, self-locking, hexagon (WP 0170, Item 11) Qty: 8
Washer, lock (WP 0170, Item 10) Qty: 8

References

WP 0170

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

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DISASSEMBLY

1. Remove quick disconnect dust cap (Figure 1, Item 15) and gasket (Figure 1, Item 13) from coupling (Figure 1, Item 14).
2. Remove quick disconnect dust plug (Figure 1, Item 12) and gasket (Figure 1, Item 13) from coupling (Figure 1, Item 6).
3. Remove eight locknuts (Figure 1, Item 9), eight lockwashers (Figure 1, Item 8), 16 washers (Figure 1, Items 7), and eight bolts (Figure 1, Item 16) from coupling (Figure 1, Item 14) connecting the butterfly valve (Figure 1, Item 1) to the coupling (Figure 1, Item 6). Discard locknuts and lockwashers.
4. Remove four gaskets (Figure 1, Item 4), two flange tube adapters (Figure 1, Item 5), coupling (Figure 1, Item 14),and butterfly valve (Figure 1, Item 1). Discard gaskets.
5. Cut wire rope (Figure 1, Item 10) and remove two sleeve bushings (Figure 1, Items 11) and wire rope from quick disconnect dust cap (Figure 1, Item 15) and coupling (Figure 1, Item 14). Discard sleeve bushings and wire rope.
6. Cut wire rope (Figure 1, Item 10) and remove two sleeve bushings (Figure 1, Items 11) and wire rope (Figure 1, Item 10) from coupling (Figure 1, Item 6) and quick disconnect dust plug (Figure 1, Item 12). Discard sleeve bushings and wire rope.
7. Remove nut (Figure 1, Item 3), bolt (Figure 1, Item 2), and manual control lever of butterfly valve (Figure 1, Item 1) from butterfly valve.

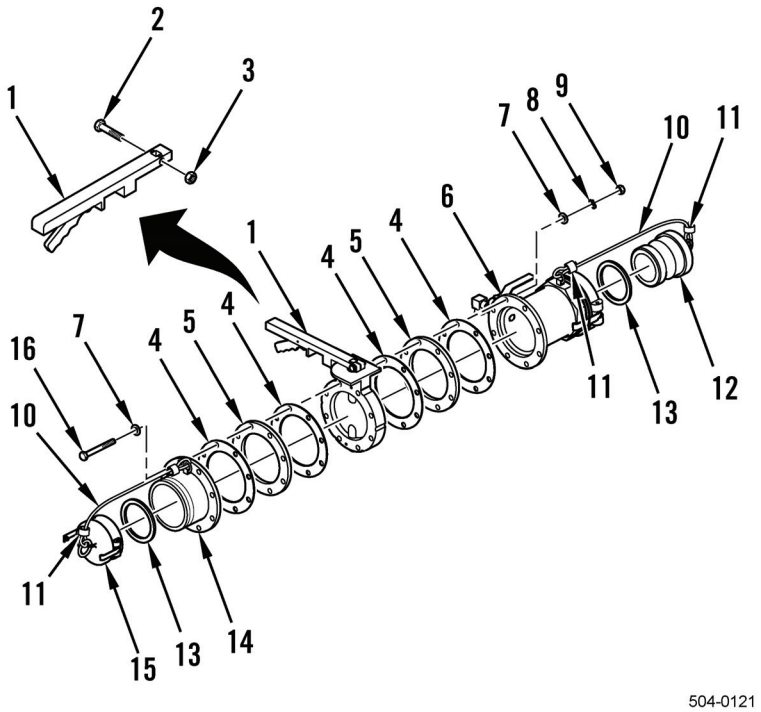

Figure 1. Camlock Adapter.

END OF TASK

CLEANING

WARNING

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1. Remove all buildup of dirt, oil, and debris from all mating surfaces and clamping areas.
2. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
3. Allow parts to dry thoroughly.

END OF TASK

ASSEMBLY

1. Install manual control lever of butterfly valve (Figure 1, Item 1), bolt (Figure 1, Item 2), and nut (Figure 1, Item 3) on butterfly valve (Figure 1, Item 1).
2. Install two new sleeve bushings (Figure 1, Item 11) and wire rope (Figure 1, Item 10) onto coupling (Figure 1, Item 6) and quick disconnect dust plug (Figure 1, Item 12).
3. Install two new sleeve bushings (Figure 1, Item 11) and wire rope (Figure 1, Item 10) onto quick disconnect dust cap (Figure 1, Item 15) and coupling (Figure 1, Item 14).
4. Position coupling (Figure 1, Item 14), new gasket (Figure 1, Item 4), flange tube adapter (Figure 1, Item 5), new gasket (Figure 1, Item 4), butterfly valve (Figure 1, Item 1), new gasket (Figure 1, Item 4), flange tube adapter (Figure 1, Item 5), new gasket (Figure 1, Item 4), and coupling (Figure 1, Item 6).
5. Install eight bolts (Figure 1, Item 16) and washers (Figure 1, Item 7) through coupling (Figure 1, Item 14), gasket (Figure 1, Item 4), flange tube adapter (Figure 1, Item 5), gasket (Figure 1, Item 4), butterfly valve (Figure 1, Item 1), gasket (Figure 1, Item 4), flange tube adapter (Figure 1, Item 5), gasket (Figure 1, Item 4), and coupling (Figure 1, Item 6).
6. Install eight washers (Figure 1, Item 7), new lockwashers (Figure 1, Item 8), and new locknuts (Figure 1, Item 9) onto bolts (Figure 1, Item 16). Torque nuts to 27-33 lb-ft (37-45 Nm).
7. Install quick disconnect dust cap (Figure 1, Item 15) and gasket (Figure 1, Item 13) onto coupling (Figure 1, Item 14).
8. Install quick disconnect dust plug (Figure 1, Item 11) and gasket (Figure 1, Item 13) into coupling (Figure 1, Item 6).
9. Install camlock adapter to bracket.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

CAMLOCK ADAPTER BRACKET REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

Materials/Parts

Nut, self-locking, hexagon (WP 0170, Item 22)
Qty: 4

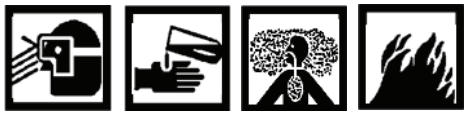
References

WP 0002
WP 0170

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING



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NOTE

Refer to Equipment Description and Data (WP 0002) for location of camlock adapter and bracket.

REMOVAL

Remove four locknuts (Figure 1, Item 3), bolts (Figure 1, Item 1), and bracket (Figure 1, Item 2). Discard locknuts.

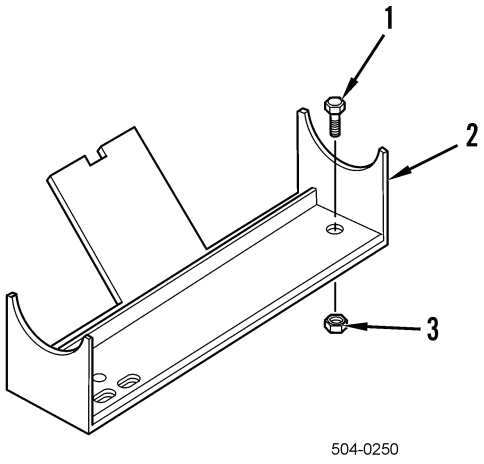

Figure 1. Camlock Adapter Bracket.

END OF TASK

INSTALLATION

1. Install bracket (Figure 2, Item 2), four bolts (Figure 2, Item 1), and new locknuts (Figure 2, Item 3).
2. Install camlock adapter to bracket.

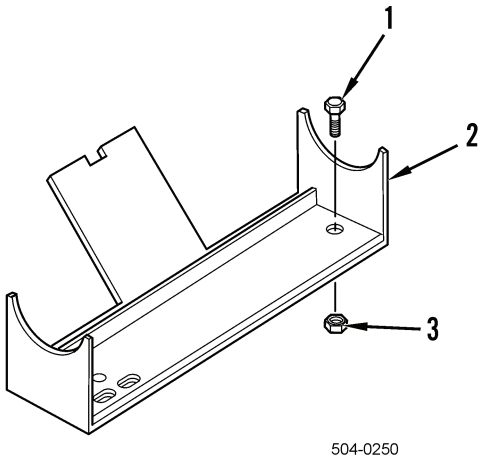

Figure 2. Camlock Adapter Bracket.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TEE ASSEMBLY REPAIR
Disassembly, Clean, Assembly

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Compression tool, multidiameter (WP 0182, Item 2)
Wrench, torque, 0-75 lb-ft (WP 0182, Item 19)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)

Materials/Parts - Continued

Cloth, cleaning (WP 0181, Item 4)
Gasket (WP 0171, Item 4) Qty: 6
Nut, self-locking, hexagon (WP 0171, Item 5) Qty: 24
Bushing, sleeve (WP 0171, Item 9) Qty: 6
Washer, lock (WP 0171, Item 6) Qty: 24

References

WP 0002
WP 0171

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

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NOTE

Refer to Equipment Description and Data (WP 0002) for location of tee assembly and bracket.

DISASSEMBLY

1. Remove dust cap (Figure 1, Item 8) from flanged coupling (Figure 1, Item 5).
2. Remove gasket (Figure 1, Item 12) from dust cap (Figure 1, Item 8).
3. Remove bushing sleeve (Figure 1, Item 9) from lanyard (Figure 1, Item 10) and remove lanyard (Figure 1, Item 10) from dust cap (Figure 1, Item 8).
4. Remove bushing sleeve (Figure 1, Item 11) from lanyard (Figure 1, Item 10) and remove lanyard (Figure 1, Item 10) from flanged coupling (Figure 1, Item 5).
5. Remove eight locknuts (Figure 1, Item 3), lockwashers (Figure 1, Item 2), washers (Figure 1, Item 1), and washers (Figure 1, Item 6) from bolts (Figure 1, Item 7), flanged coupling (Figure 1, Item 5) and flanged tee (Figure 1, Item 34). Discard locknuts and lockwashers.
6. Remove flanged coupling (Figure 1, Item 5) and gasket (Figure 1, Item 4) from tee (Figure 1, Item 34). Discard gasket.
7. Remove dust plug (Figure 1, Item 21) from coupling (Figure 1, Item 19).
8. Remove gasket (Figure 1, Item 20) from coupling (Figure 1, Item 19).
9. Remove bushing sleeve (Figure 1, Item 22) from lanyard (Figure 1, Item 23) and remove lanyard (Figure 1, Item 23) from dust plug (Figure 1, Item 21).
10. Remove bushing sleeve (Figure 1, Item 26) from lanyard (Figure 1, Item 23) and remove lanyard (Figure 1, Item 23) from coupling (Figure 1, Item 19).
11. Remove eight locknuts (Figure 1, Item 31), lockwashers (Figure 1, Item 32), and washers (Figure 1, Item 33) from bolts (Figure 1, Item 24). Discard locknuts and lockwashers.
12. Remove eight bolts (Figure 1, Item 24) and washers (Figure 1, Item 25) from coupling (Figure 1, Item 19).
13. Remove coupling (Figure 1, Item 19), gasket (Figure 1, Item 18), adapter flange (Figure 1, Item 17), and gasket (Figure 1, Item 16) from butterfly valve (Figure 1, Item 27). Discard gaskets.
14. Remove butterfly valve (Figure 1, Item 27), gasket (Figure 1, Item 28), adapter flange (Figure 1, Item 29), and gasket (Figure 1, Item 30) from flanged tee (Figure 1, Item 34). Discard gaskets.
15. Remove dust plug (Figure 1, Item 40) from coupling (Figure 1, Item 37).
16. Remove gasket (Figure 1, Item 41) from coupling (Figure 1, Item 37).
17. Remove bushing sleeve (Figure 1, Item 39) from lanyard (Figure 1, Item 38) and remove lanyard (Figure 1, Item 38) from dust plug (Figure 1, Item 40).
18. Remove bushing sleeve (Figure 1, Item 36) from lanyard (Figure 1, Item 38) and remove lanyard (Figure 1, Item 38) from coupling (Figure 1, Item 37).
19. Remove eight locknuts (Figure 1, Item 44), lockwashers (Figure 1, Item 45), and washers (Figure 1, Item 46) from bolts (Figure 1, Item 42). Discard locknuts and lockwashers.
20. Remove eight bolts (Figure 1, Item 42) and washers (Figure 1, Item 43) from coupling (Figure 1, Item 37).
21. Remove coupling (Figure 1, Item 37) and gasket (Figure 1, Item 35) from flanged tee (Figure 1, Item 34). Discard gasket.

DISASSEMBLY – CONTINUED

22. Remove nut (Figure 1, Item 15) from screw (Figure 1, Item 13).
23. Remove manual control lever (Figure 1, Item 14) from butterfly valve (Figure 1, Item 27).

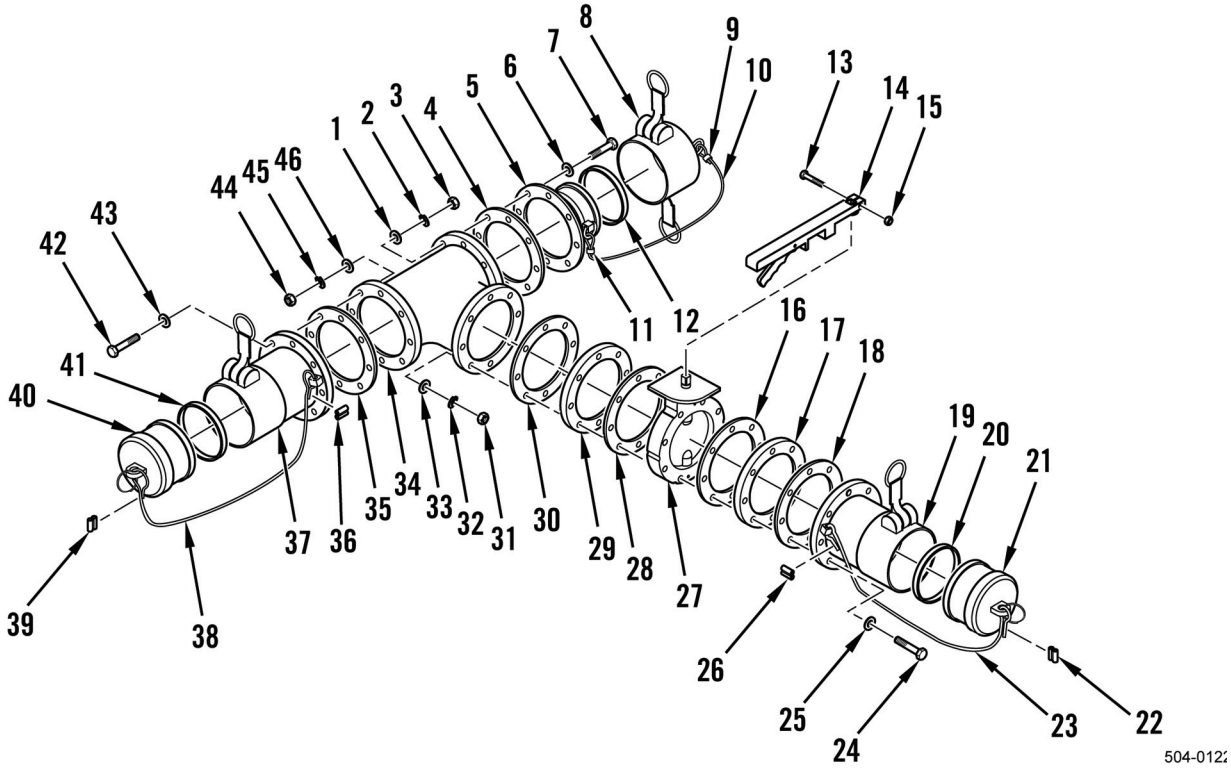

Figure 1. Tee Assembly.

END OF TASK

CLEAN

WARNING

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1. Remove all buildup of dirt, oil and debris from all mating surfaces and clamping areas.
2. Clean all metallic parts with a cleaning cloth and solvent cleaning compound.
3. Allow parts to dry thoroughly.

END OF TASK

ASSEMBLY

1. Position coupling (Figure 2, Item 37) and new gasket (Figure 2, Item 35) on flanged tee (Figure 2, Item 34), aligning all eight holes.
2. Install eight bolts (Figure 2, Item 42) with washers (Figure 2, Item 43) through coupling (Figure 2, Item 37), gasket (Figure 2, Item 35) and flanged tee (Figure 2, Item 34).
3. Install eight washers (Figure 2, Item 46), new lockwashers (Figure 2, Item 45), and new locknuts (Figure 2, Item 44) on bolts (Figure 2, Item 42).
4. Torque locknuts (Figure 2, Item 44) to 27–33 lb-ft (37–45 Nm).
5. Install lanyard (Figure 2, Item 38) onto coupling (Figure 2, Item 37) with new bushing sleeve (Figure 2, Item 36).
6. Install lanyard (Figure 2, Item 38) onto dust plug (Figure 2, Item 40) with new bushing sleeve (Figure 2, Item 39).
7. Install new gasket (Figure 2, Item 41) in coupling (Figure 2, Item 37).
8. Install dust plug (Figure 2, Item 40) into coupling (Figure 2, Item 37).
9. Position butterfly valve (Figure 2, Item 27), new gasket (Figure 2, Item 28), adapter flange (Figure 2, Item 29), and new gasket (Figure 2, Item 30) to flanged tee (Figure 2, Item 34) aligning all eight holes.
10. Position coupling (Figure 2, Item 19), new gasket (Figure 2, Item 18), adapter flange (Figure 2, Item 17), and new gasket (Figure 2, Item 16) to butterfly valve (Figure 2 Item 27), aligning all eight holes.
11. Install eight bolts (Figure 2, Item 24) with washers (Figure 2, Item 25) through coupling (Figure 2, Item 19), gasket (Figure 2, Item 18), adapter flange (Figure 2, Item 17) gasket (Figure 2, Item 16), butterfly valve (Figure 2, Item 27), gasket (Figure 2, Item 28), adapter flange (Figure 2, Item 29), and gasket (Figure 2, Item 30) to flanged tee (Figure 2, Item 34).
12. Install eight washers (Figure 2, Item 33), new lockwashers (Figure 2, Item 32), and new locknuts (Figure 2, Item 31) on eight bolts (Figure 2, Item 24).
13. Torque locknuts (Figure 2, Item 31) to 27-33 lb-ft (37-45 Nm).
14. Install lanyard (Figure 2, Item 23) onto coupling (Figure 2, Item 19) with new bushing sleeve (Figure 2, Item 26).
15. Install lanyard (Figure 2, Item 23) onto dust plug (Figure 2, Item 21) with new bushing sleeve (Figure 2, Item 22).
16. Install gasket (Figure 2, Item 20) into coupling (Figure 2, Item 19).
17. Install dust plug (Figure 2, Item 21) into coupling (Figure 2, Item 19).
18. Position flanged coupling (Figure 2, Item 5) and new gasket (Figure 2, Item 4) on flanged tee (Figure 2, Item 34), aligning all eight holes.
19. Install eight bolts (Figure 2, Item 7) with washers (Figure 2, Item 6) through flanged coupling (Figure 2, Item 5) and gasket (Figure 2, Item 4) to flanged tee (Figure 2, Item 34).

ASSEMBLY – CONTINUED

20. Install eight flat washers (Figure 2, Item 1), new lockwashers (Figure 2, Item 2), and new locknuts (Figure 2, Item 3) on bolts (Figure 2, Item 7).
21. Torque locknuts (Figure 2, Item 3) to 27–33 lb-ft (37–45 Nm).
22. Install lanyard (Figure 2, Item 10) onto flanged coupling (Figure 2, Item 5) with new bushing sleeve (Figure 2, Item 11).
23. Install lanyard (Figure 2, Item 10) onto dust cap (Figure 2, Item 8) with new bushing sleeve (Figure 2, Item 9).
24. Install gasket (Figure 2, Item 12) in dust cap (Figure 2, Item 8).
25. Install dust cap (Figure 2, Item 8) on flanged coupling (Figure 2, Item 5).
26. Install manual control lever (Figure 2, Item 14) on butterfly valve (Figure 2, Item 27).
27. Install nut (Figure 2, Item 15) on screw (Figure 2, Item 13).

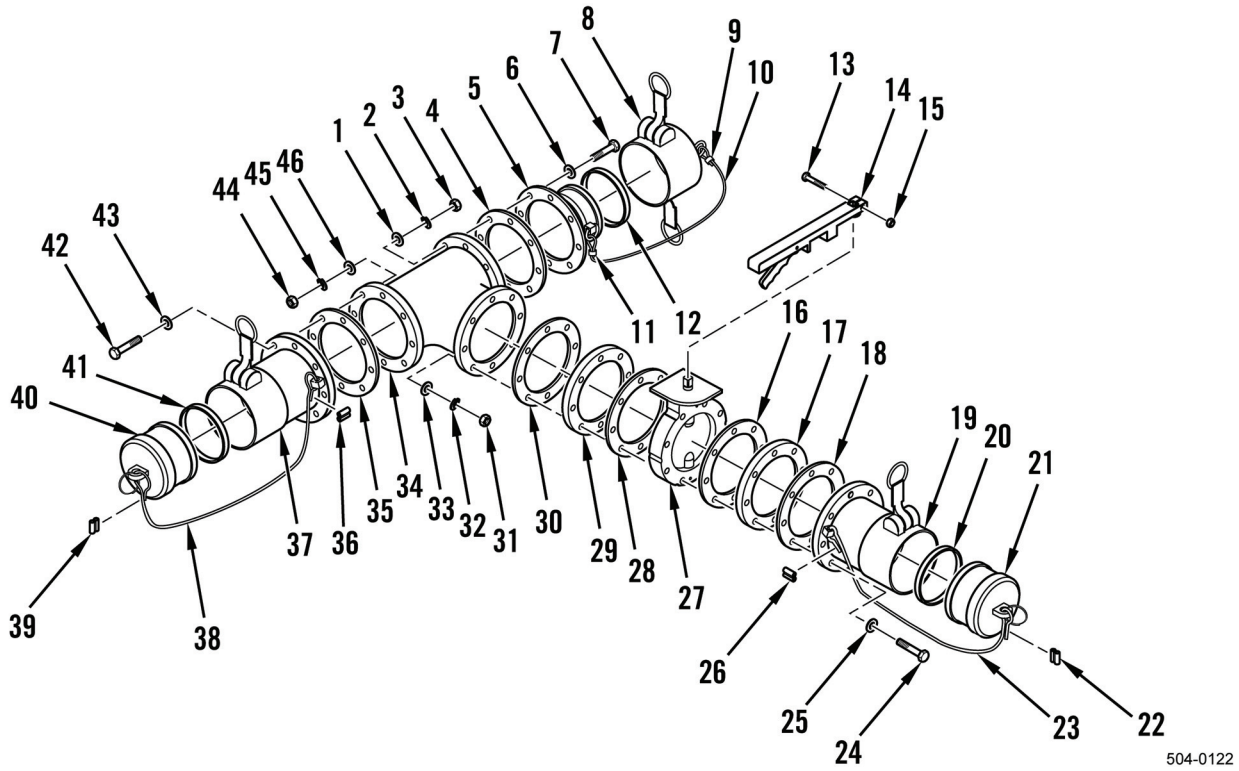


Figure 2. Tee Assembly.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TEE ASSEMBLY BRACKET REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)

References

WP 0002
WP 0171

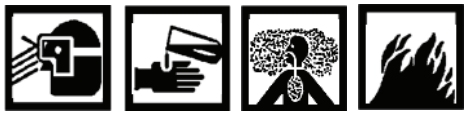
Material/Parts

Nut, self-locking, hexagon (WP 0171, Item 21)
Qty: 3

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING



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NOTE

Refer to Equipment Description and Data (WP 0002) for location of tee assembly and bracket.

REMOVAL

1. Remove tee assembly from bracket (Figure 1, Item 2).
2. Remove three bolts (Figure 1, Item 1) and locknuts (Figure 1, Item 4) securing bracket (Figure 1, Item 2) to TRM frame (Figure 1, Item 3). Discard locknuts.
3. Remove bracket (Figure 1, Item 2) from TRM frame (Figure 1, Item 3).

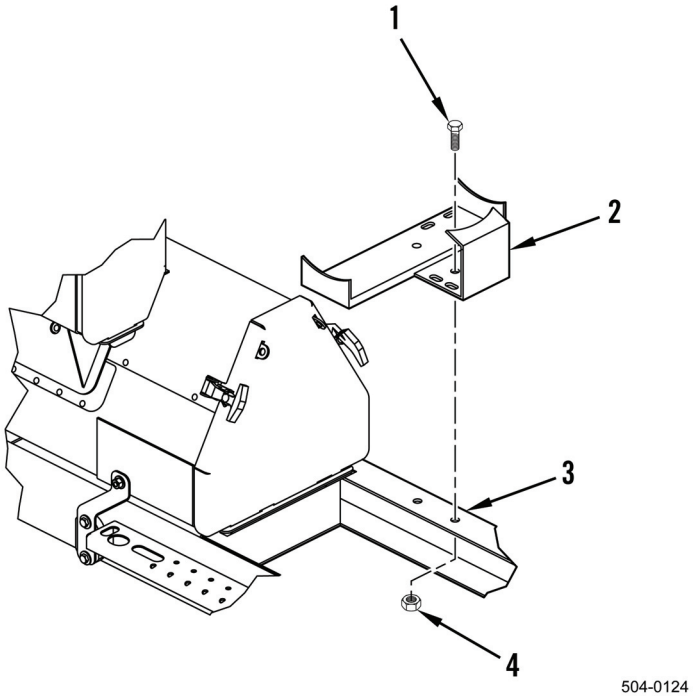


Figure 1. Tee Assembly Bracket.

END OF TASK

INSTALLATION

1. Position bracket (Figure 1, Item 2) on TRM frame (Figure 1, Item 3).
2. Install three bolts (Figure 1, Item 1) and new locknuts (Figure 1, Item 4) to secure bracket (Figure 1, Item 2) to TRM frame (Figure 1, Item 3).
3. Install tee assembly into bracket (Figure 1, Item 2).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

LADDER AND BRACKETS REPLACEMENT
Removal, Disassembly, Assembly, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

Materials/Parts

Washer, lock (WP 0167, Item 17) Qty: 8

References

WP 0167
WP 0172

Equipment Condition

TRM shut down (TM 10-4930-370-10)

REMOVAL

1. Release two clamping catches (Figure 1, Item 1) and remove ladder (Figure 1, Item 2) from brackets (Figure 1, Item 3).

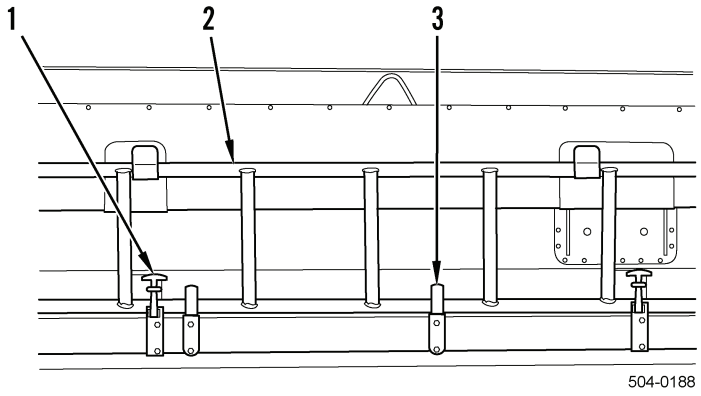


Figure 1. Ladder.

REMOVAL – CONTINUED

2. Remove four screws (Figure 2, Item 3), nuts (Figure 2, Item 5), lockwashers (Figure 2, Item 1), and two clamping catches (Figure 2, Item 4) from brackets (Figure 2, Item 2). Discard lockwashers.

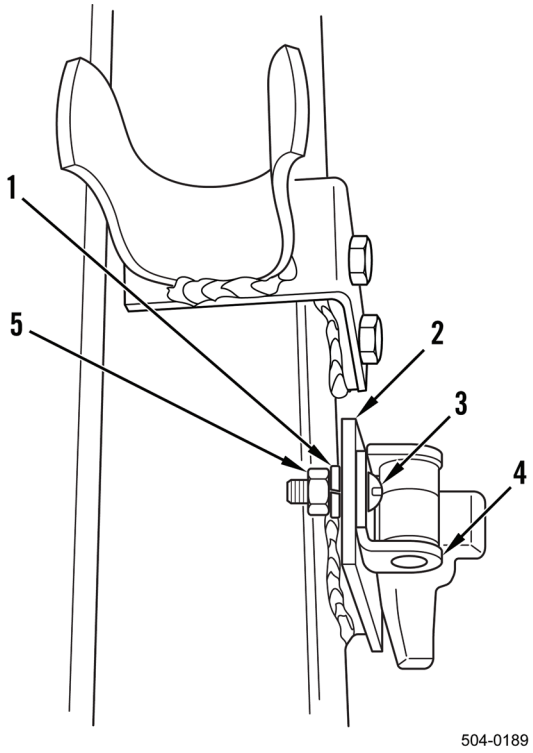


Figure 2. Ladder Clamping Catch.

3. Remove four bolts (Figure 3, Item 1) and two clamping catch brackets (Figure 3, Item 2) from TRM frame (Figure 3, Item 5).
4. Remove four bolts (Figure 3, Item 4) and two brackets (Figure 3, Item 3) from TRM frame (Figure 3, Item 5).

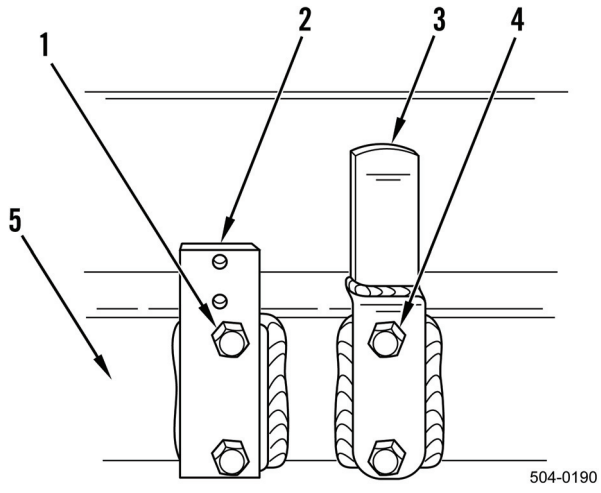


Figure 3. Ladder Brackets.

END OF TASK

DISASSEMBLY

Remove four screws (Figure 4, Item 1), nuts (Figure 4, Item 4), lockwashers (Figure 4, Item 3), and two clamping catch plates (Figure 4, Item 2) from ladder (Figure 4, Item 5). Discard lockwashers.

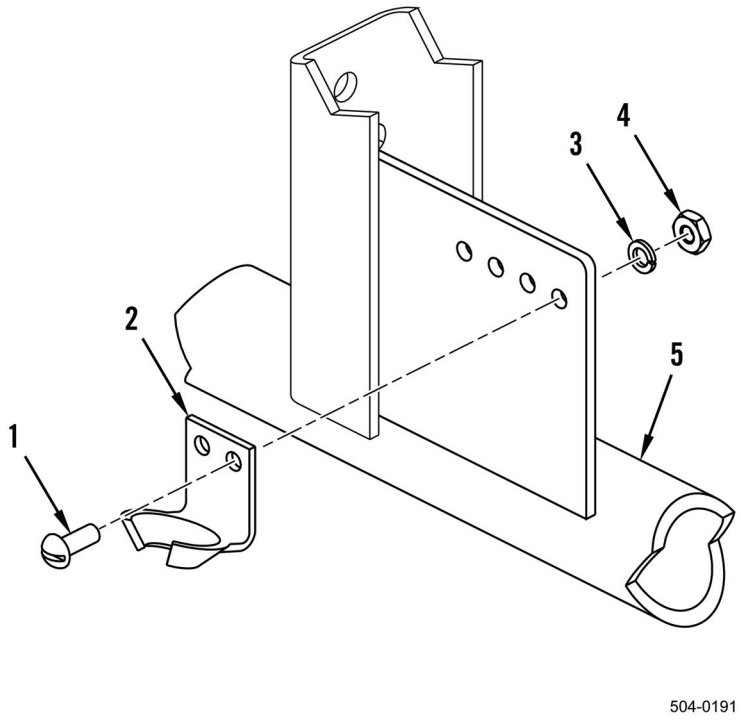


Figure 4. Ladder Clamping Catch Plates

END OF TASK

ASSEMBLY

Install two clamping catch plates (Figure 4, Item 2), four new lockwashers (Figure 4, Item 3), screws (Figure 4, Item 1), and nuts (Figure 4, Item 4) on ladder (Figure 4, Item 5).

END OF TASK

INSTALLATION

1. Install two brackets (Figure 3, Item 3) and four bolts (Figure 3, Item 4) on TRM frame (Figure 3, Item 5).
2. Install two clamping catch brackets (Figure 3, Item 2) and four bolts (Figure 3, Item 1) on TRM frame (Figure 3, Item 5).
3. Install two clamping catches (Figure 2, Item 4), four new washers (Figure 2, Item 1), screws (Figure 2, Item 3), and nuts (Figure 2, Item 5) on brackets (Figure 2, Item 2).

INSTALLATION – CONTINUED

4. Install ladder (Figure 5, Item 2) on brackets (Figure 5, Item 3) and secure with two clamping catches (Figure 5, Item 1).

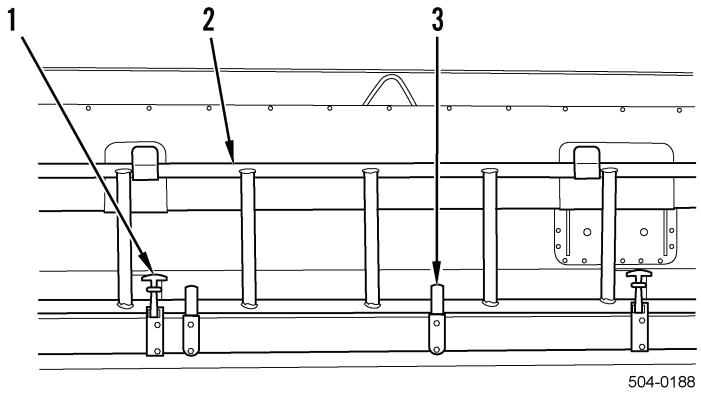


Figure 5. Ladder.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

ISO RACK LADDER REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)

References

WP 0172

Materials/Parts

Nut, self-locking, hexagon (WP 0172, Item 2)
Qty: 2

Equipment Condition

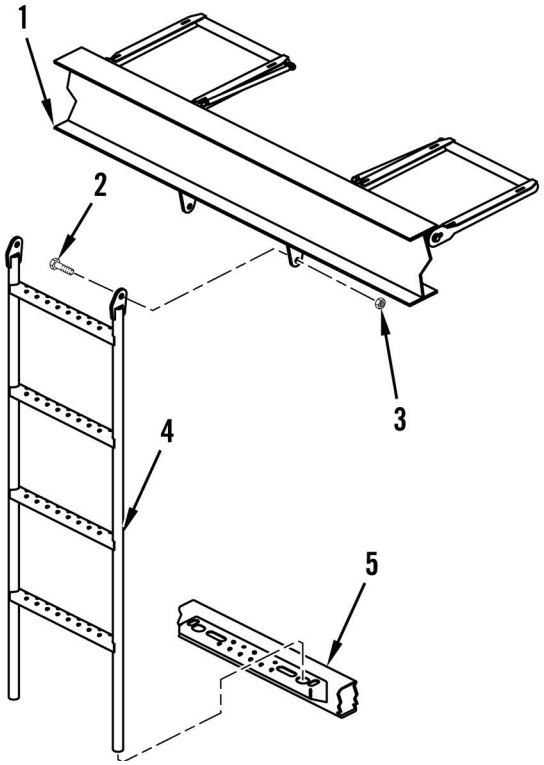
TRM shut down (TM 10-4930-370-10)

WARNING

Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam. Failure to comply may result in injury or death to personnel.

REMOVAL

1. Remove two locknuts (Figure 1, Item 3) and two bolts (Figure 1, Item 2) securing ISO rack ladder (Figure 1, Item 4) to upper TRM frame (Figure 1, Item 1). Discard locknuts.
2. Lift ISO rack ladder (Figure 1, Item 4) upwards until bottom of ISO rack ladder is removed from bottom of TRM frame (Figure 1, Item 5).



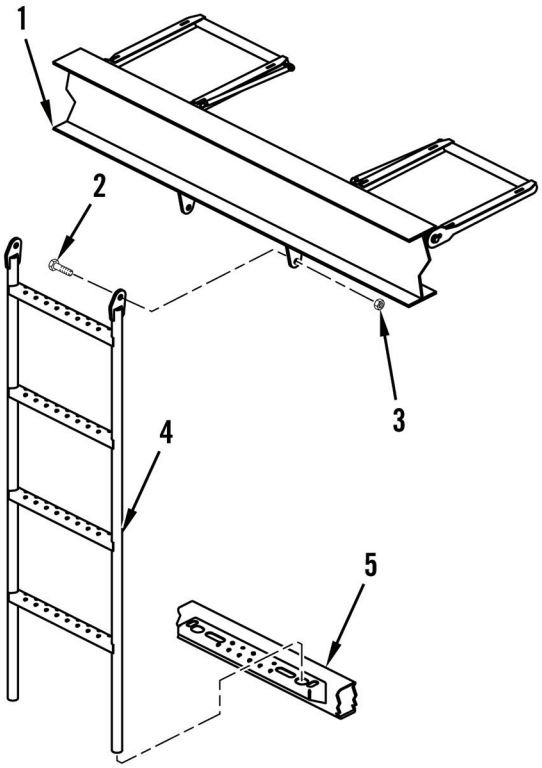
504-0045

Figure 1. ISO Rack Ladders.

END OF TASK

INSTALLATION

1. Install ISO rack ladder (Figure 2, Item 4) in mounting rings on bottom TRM frame (Figure 2, Item 5).
2. Lift upwards on ISO rack ladder (Figure 2, Item 4) to align holes in ISO rack ladder and upper TRM frame (Figure 2, Item 1).
3. Install two bolts (Figure 2, Item 2) and two new locknuts (Figure 2, Item 3) through ISO rack ladder (Figure 2, Item 4) and upper TRM frame (Figure 2, Item 1).



504-0045

Figure 2. ISO Rack Ladders.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

DATA PLATES REPLACEMENT
Removal, Installation

INITIAL SETUP

Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Drill, battery, rechargable (WP 0182, Item 6)
Drill set, twist (WP 0182, Item 7)
Tool kit, blind (WP 0182, Item 11)

Materials/Parts

Rivet, blind (1/8") (WP 0173, Item 6)

References

WP 0173

Equipment Condition

TRM shut down (TM 10-4930-370-10)

WARNING

- Wear eye protection when removing rivets.
- Upper support beam on rear of TRM is 63 in. (1.6 m) above the ground. Use caution when operating valves and equipment at rear of TRM to avoid striking head on support beam.
- Failure to comply may result in an eye injury.

NOTE

- The number of rivets varies with each data plate. This WP covers the removal and replacement of four different data plates: safety and tank rack module at right rear, identification plate at right side, and tie down at left side. See TM 10-4930-370-10 for data plate locations.
- There are different part numbers for the safety data plate depending on the serial number of the TRM, but the removal and replacement procedure is the same for both.

REMOVAL

1. Remove rivets (Figure 1, Item 2) from data plate (Figure 1, Item 3) and component (Figure 1, Item 1). Discard rivets.
2. Remove data plate (Figure 1, Item 3) from component (Figure 1, Item 1).

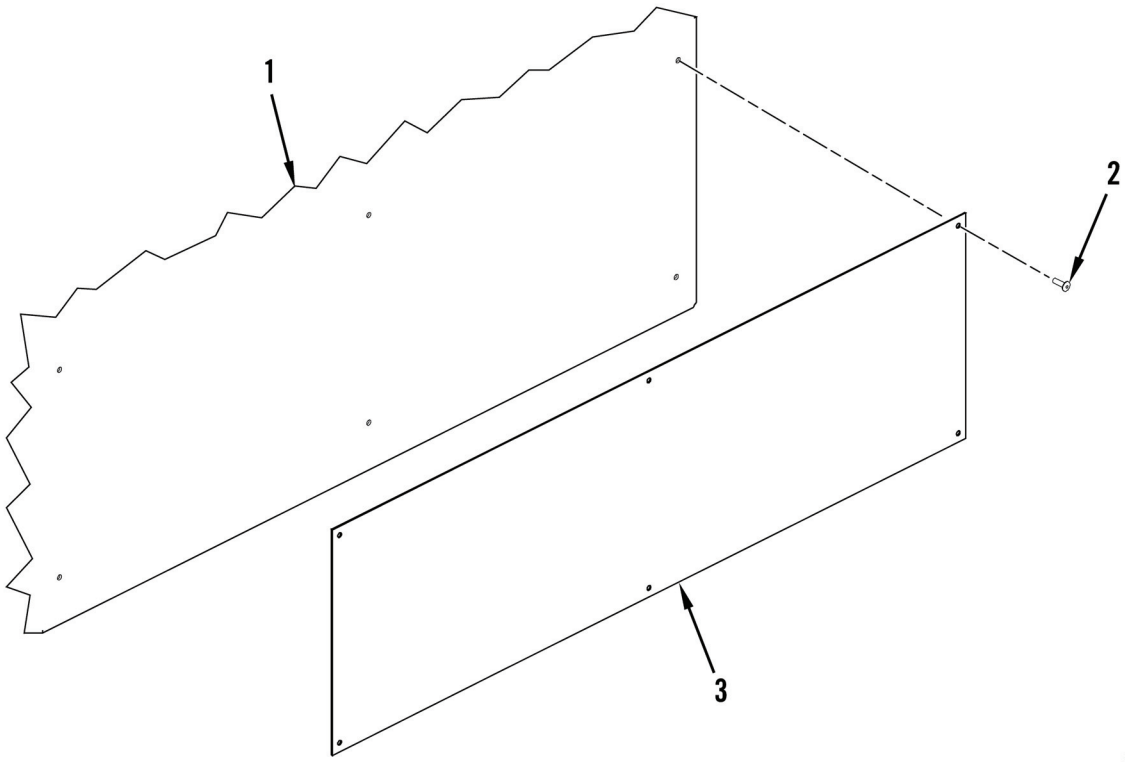


Figure 1. Data Plate.

END OF TASK

INSTALLATION

1. Position data plate (Figure 1, Item 3) on component (Figure 1, Item 1) and align holes.
2. Install new rivets (Figure 1, Item 2) to secure data plate (Figure 1, Item 3) on component (Figure 1, Item 1).

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

GENERAL MAINTENANCE
Primer and Sealer

INITIAL SETUP

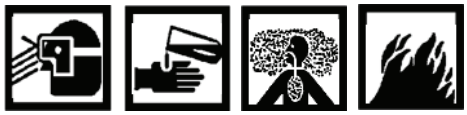
Tools and Special Tools

Tool kit, general mechanic's (WP 0182, Item 12)
Fire extinguisher (TM 10-4930-370-10)
Gloves, rubber, industrial (WP 0181, Item 6)
Goggles, industrial (WP 0181, Item 7)
Wire brush (WP 0182, Item 14)

Materials/Parts

Cleaning compound, solvent (WP 0181, Item 2)
Cloth, cleaning (WP 0181, Item 4)
Primer, adhesive (WP 0181, Item 16)
Sealing compound (WP 0181, Item 18)

WARNING



- Primer and sealing compound are flammable, toxic, and an irritant to eyes, skin, and respiratory system. Do not use near open flame or excessive heat. Goggles and gloves must be worn when working with sealing compound. Avoid contact with eyes and skin. Avoid breathing vapors and ensure there is adequate ventilation. If sealing compound contacts eyes, flush eyes with cold water for at least 15 minutes and seek immediate medical attention. If sealing compound contacts skin, wash skin thoroughly with soap and water. Failure to comply may result in injury or death to personnel.
- Solvent cleaning compound MIL-PRF-680 Type III is an environmentally compliant and low toxic material. However, it may be irritating to the eyes and skin. Use protective gloves and goggles, Use in well-ventilated areas. Keep away from open flames and other sources of ignition. Failure to comply may cause injury or death to personnel.

GENERAL MAINTENANCE

Primer and Sealer

1. Apply primer:

WARNING

Any previous sealing compound must be removed from pipe fittings with cleaning compound and a wire brush when reusing pipe fittings. Previous sealing compound can cause improper sealing of pipe threads and fuel leaks. Contaminated surfaces may need repeated treatment prior to applying primer to remove any dissolvable contamination. Failure to comply may result in damage to equipment and injury or death to personnel.

a. Clean all mating surfaces (external and internal) with cleaning compound.
b. Allow cleaning compound time to evaporate (approximately 4 to 5 minutes) under good ventilation until surfaces are completely dry.
c. Spray or brush primer activator on both mating male and female threads. Make sure primer is applied 360 degrees for complete coverage of threaded area.

GENERAL MAINTENANCE – CONTINUED

Primer and Sealer – Continued

2. Apply sealing compound:

NOTE

A cleaning cloth can be used to confirm primer has dried.

a. Confirm primer is dry.

b. Apply a 360 degree ribbon bead of sealing compound to leading threads of both male and female fittings, leaving first thread free of sealing compound. Force sealing compound into threads to thoroughly fill voids.

WARNING

Sealing compound requires 24 hours for full cure, but the TRM can be used within 3 hours when primer is used with sealing compound. Using the TRM before allowing sealing compound to cure can cause fuel leaks. Failure to comply may result in damage to equipment and injury or death to personnel.

c. Allow sealing compound to cure a minimum of 3 hours after completing installation of fittings.

d. Wipe off excess sealing compound.

END OF TASK

END OF WORK PACKAGE

FIELD MAINTENANCE

TORQUE LIMITS

When To Use Torque Limits, When To Use Adapters with Torque Wrenches, How To Use Adapters With Torque Wrenches, How To Use Torque Tables

WHEN TO USE TORQUE LIMITS

When a torque is not specified in an individual work package, use the procedures in this work package to determine proper torque limits and use of adapters with torque wrenches.

WHEN TO USE ADAPTERS WITH TORQUE WRENCHES

When an adapter is necessary due to space or type of fitting being torqued, it must be determined how the adapter changes the amount of force applied. If the adapter increases or decreases the distance from the drive of the torque wrench to the fitting being torqued, an equation must be used to compensate for the difference.

HOW TO USE ADAPTERS WITH TORQUE WRENCHES

NOTE

The following abbreviations apply to the below procedures:

- DT = Desired Torque
- LT = Length of Torque Wrench
- AL = Adapter Length
- AT = Applied Torque

1. If the adapter used decreases the distance between the center of the torque wrench handle and the center of the drive, first find the desired torque for the fitting, then calculate as follows:
   a. Multiply DT by LT.
   b. Subtract AL from LT.
   c. Divide the first answer by the second answer to find AT.

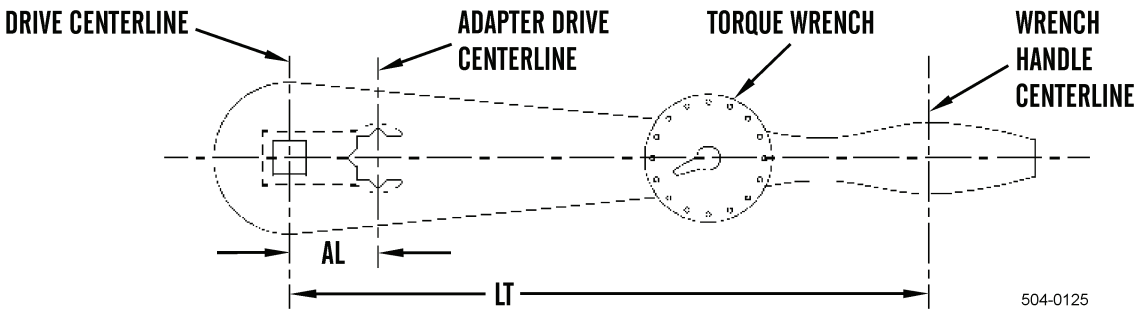


Figure 1. Torque Wrench.

HOW TO USE ADAPTERS WITH TORQUE WRENCHES – CONTINUED

2. If the adapter used increases the distance between the center of the torque wrench handle and the center of the drive, first find the desired torque for the fitting, then calculate as follows:
   a. Multiply DT by LT.
   b. Add AL and LT.
   c. Divide the first answer by the second answer to find AT.

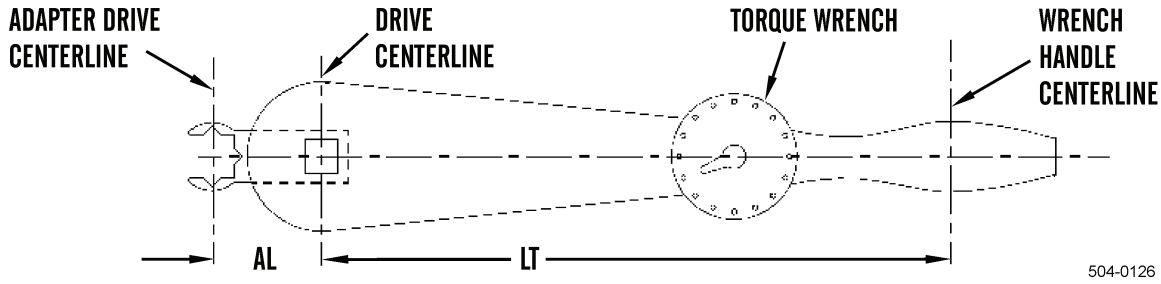


Figure 2. Torque Wrench.

HOW TO USE TORQUE TABLES

1. Measure the diameter of the bolt to be torqued.

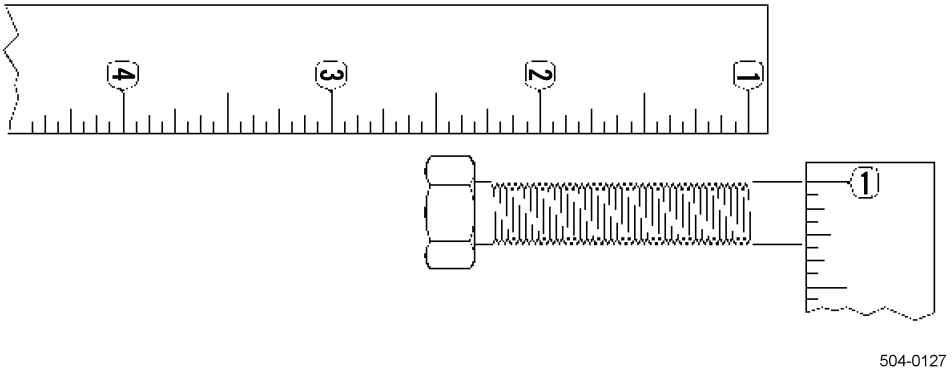


Figure 3. Torque Wrench Measurement.

HOW TO USE TORQUE TABLES – CONTINUED

2. For Society of Automotive Engineers (SAE) fasteners, determine the threads per in. by counting the threads. For metric fasteners, determine the thread pitch using a thread pitch gage.
3. Determine the type of markings on the bolt you are torquing by comparing the markings on the head of the bolt with the chart below.

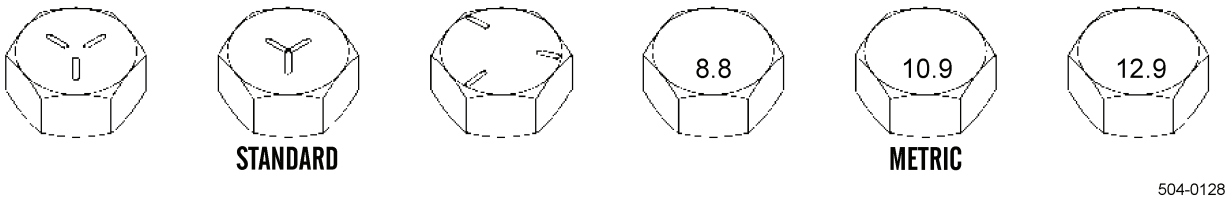
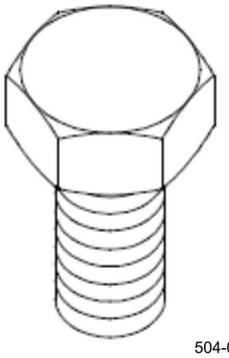
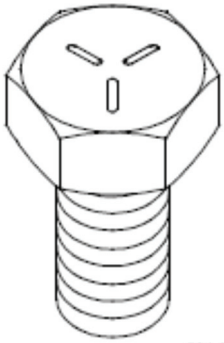
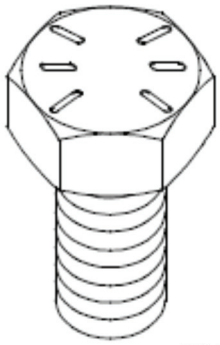


Figure 4. Torque Wrench Standard and Metric.

4. Determine if this will be a wet or dry torque.
   a. Wet torque is any bolt that is lubricated or coated with an antiseize compound.
   b. Dry torque is any bolt that is not lubricated or coated with an antiseize compound.
5. In Tables 1 thru 4, locate the bolt to be torqued.
   a. Locate the diameter of the bolt.
   b. Determine the threads per inch for the SAE fastener or the thread pitch for the metric fastener.
   c. Slide across the table to the proper grade.
   d. Choose wet or dry.
   e. Slide down the proper column and across the proper row until they intersect, this is the proper torque value.

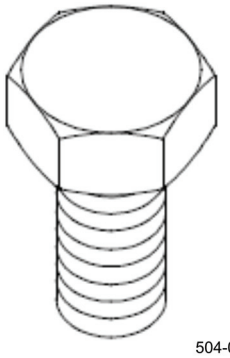
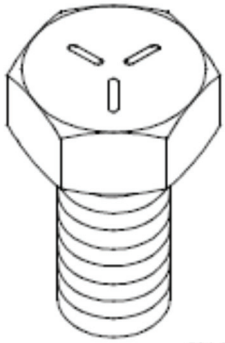
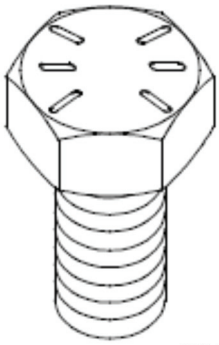
HOW TO USE TORQUE TABLES – CONTINUED

Table 1. SAE Standard Torque.

		SAE GRADE NO. 2				SAE GRADE NO. 5				SAE GRADE NO. 8			
		 504-0129				 504-0130				 504-0131			
		DRY		WET		DRY		WET		DRY		WET	
DIA IN.	THREADS PER IN.	IN-LB	NM	IN-LB	NM	IN-LB	NM	IN-LB	NM	IN-LB	NM	IN-LB	NM
1/4	20	66	7.46	49	5.54	101	11.41	76	8.58	143	16.15	107	12.09
1/4	28	75	8.47	56	6.33	116	13.10	87	9.83	164	18.53	123	13.89
5/16	18	135	15.25	101	11.41	209	23.61	157	17.73	295	33.32	221	24.96
5/16	24	150	17.17	112	12.65	230	25.98	173	19.54	327	36.94	245	27.68
3/8	16	240	27.11	180	20.33	370	41.80	278	31.40	523	59.08	392	44.28
3/8	24	272	30.73	204	23.04	420	47.44	315	35.58	593	66.99	445	50.27
7/16	14	384	43.38	288	32.53	593	66.99	445	50.27	837	94.55	628	70.94
7/16	20	428	48.35	321	36.26	662	74.78	496	56.03	935	105.62	700	79.07
1/2	13	585	66.08	439	49.59	904	102.12	678	76.59	1277	144.25	958	108.22
1/2	20	660	74.55	495	55.92	1020	115.22	764	86.30	1440	162.66	1080	122.00

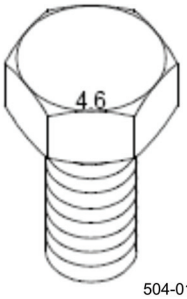
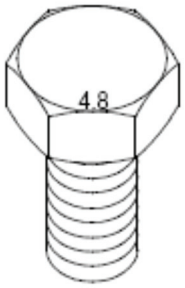
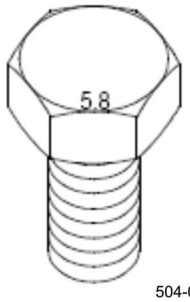
HOW TO USE TORQUE TABLES – CONTINUED

Table 2. SAE Standard Torque.

		SAE GRADE NO. 2				SAE GRADE NO. 5				SAE GRADE NO. 8			
		 504-0129				 504-0130				 504-0131			
		DRY		WET		DRY		WET		DRY		WET	
DIA IN.	THREADS PER IN.	FT-LB	NM	FT-LB	NM	FT-LB	NM	FT-LB	NM	FT-LB	NM	FT-LB	NM
9/16	12	70	94.92	53	71.87	109	147.80	82	111.19	154	208.82	115	155.94
9/16	18	78	105.77	59	80.00	121	164.08	91	123.40	171	231.88	128	173.57
5/8	11	97	131.53	73	98.99	150	203.40	113	153.23	212	287.47	159	215.60
5/8	18	110	149.16	82	111.19	170	230.52	127	172.21	240	325.44	180	244.08
3/4	10	172	233.23	129	174.92	269	364.76	201	272.56	376	509.86	282	382.39
3/4	16	192	260.35	144	195.26	297	402.73	223	302.29	420	569.52	315	427.14
1	8	--		--		644	873.26	483	654.95	909	1232.60	683	926.15
1	12	--		--		704	954.62	528	715.97	995	1349.22	746	1011.58

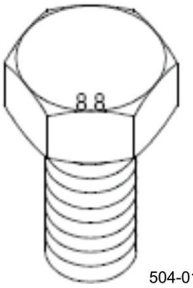
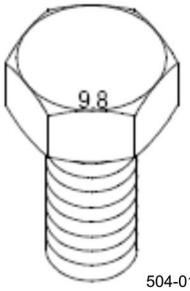
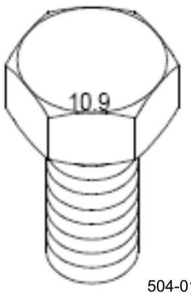
HOW TO USE TORQUE TABLES – CONTINUED

Table 3. Metric Torque.

		CLASS 4.6				CLASS 4.8				CLASS 5.8			
		 504-0132				 504-0133				 504-0134			
		DRY		WET		DRY		WET		DRY		WET	
DIA IN.	THREADS PITCH	NM	IN-LB	NM	IN-LB	NM	IN-LB	NM	IN-LB	NM	IN-LB	NM	IN-LB
3.0	0.5	.50	4	.40	4	.70	6	.50	4	-	-	-	-
3.5	0.6	.80	7	.60	5	1.10	10	.80	7	-	-	-	-
4.0	0.7	1.20	11	.90	8	1.60	14	1.20	11	-	-	-	-
5.0	0.8	2.40	21	1.80	16	3.30	29	2.50	22	4.00	35	3.00	27
6.0	1.0	4.00	35	3.00	27	5.66	50	4.20	37	6.90	61	5.20	46
8.0	1.25	9.90	88	7.40	66	13.60	120	10.20	90	16.70	148	12.50	111
10.	1.50	19.60	174	14.70	130	27.00	239	20.00	177	33.10	293	24.80	220
12.0	1.75	34.10	302	25.60	227	47.00	416	35.00	310	58.00	513	43.00	381
14.0	2.0	54.30	481	40.80	361	75.00	664	56.00	496	92.00	814	69.00	611

HOW TO USE TORQUE TABLES – CONTINUED

Table 4. Metric Standard Torque.

		CLASS 8.8				CLASS 9.8				CLASS 10.9			
		 504-0135				 504-0136				 504-0137			
		DRY		WET		DRY		WET		DRY		WET	
DIA IN.	THREADS PITCH	NM	FT-LB	NM	FT-LB	NM	FT-LB	NM	FT-LB	NM	FT-LB	NM	FT-LB
8.0	1.25	26.40	19	19.80	15	28.50	21	21.40	16	36.50	27	27.30	20
10.0	1.50	52.20	38	39.20	29	56.60	42	42.40	31	72.20	53	54.20	40
12.0	1.75	91.00	67	68.00	50	99.00	73	74.00	55	126.00	93	94.00	69
14.0	2.00	145.00	107	109.00	80	157.00	116	118.00	87	200.00	147	150.00	111
16.0	2.00	226.00	167	170.00	125	245.00	181	184.00	136	313.00	231	235.00	173
20.0	2.50	441.00	325	331.00	244	478.00	353	358.00	264	610.00	450	458.00	338
24.0	3.00	762.00	562	572.00	422	826.00	609	620.00	457	1055.00	778	791.00	583
30.0	3.50	1515.00	1117	1136.00	838	1641.00	1210	1231.00	908	2095.00	1545	1572.00	1159
36.0	4.00	2647.00	1952	1985.00	1464	2868.00	2115	2151.00	1586	3662.00	2701	2746.00	2025

END OF WORK PACKAGE

CHAPTER 4

PARTS INFORMATION

FIELD MAINTENANCE

REPAIR PARTS AND SPECIAL TOOLS LIST (RPSTL) INTRODUCTION

Scope, General, Explanation of Columns in the Repair Parts Lists and Special Tools List, Explanation of Cross-Reference Indexes Format and Columns, Special Information, How to Locate Repair Parts, Abbreviations

INTRODUCTION

SCOPE

This RPSTL lists the authorized spares and repair parts; special tools; special test, measurement, and diagnostic equipment (TMDE); and other special support equipment required for performance of Field level maintenance of the MFS TRM. It authorizes the requisitioning, issue, and disposition of spares, repair parts, and special tools as indicated by the source, maintenance, and recoverability (SMR) codes.

GENERAL

In addition to the Introduction work package, this RPSTL is divided into the following work packages:

1. Repair Parts List Work Packages. Work packages containing lists of spare and repair parts authorized for use in the performance of maintenance at the levels determined by the MAC/SMR code. These work packages also include parts which must be removed for replacement of the authorized parts. Parts lists are composed of functional groups in ascending alphanumeric sequence, with the parts in each group listed in ascending Figure and item number sequence. Sending units, brackets, filters, and bolts are listed with the component they mount on. Bulk materials are listed by item name in the Bulk Items work package which follows the Special Tools Repair Parts work package. Repair parts kits are listed separately in their own functional group and work package. Repair parts for reparable special tools are also listed in a separate work package. Items listed are shown on the associated illustrations.
2. Bulk Items Work Package. This work package lists all items identified as ‘bulk’ in the parts lists. Due to the nature of bulk items, this work package does not include a Figure.
3. Special Tools List Work Packages. This work package lists those special tools, special TMDE, and special support equipment authorized by this RPSTL (as indicated by Basis of Issue (BOI) information in the DESCRIPTION AND USABLE ON CODE (UOC) column). Tools that are components of common tool sets and/or Class VII are not listed.
4. Cross-Reference Indexes Work Packages. There are two cross-reference indexes work packages in this RPSTL. The National Stock Number (NSN) Index work package refers you to the Figure and item number for each NSN listed in the RPSTL. The Part Number Index work package refers you to the figure and item number for each part number listed in the RPSTL.

EXPLANATION OF COLUMNS IN THE REPAIR PARTS LIST AND SPECIAL TOOLS LIST WORK PACKAGES

Item No. (Column 1). Indicates the number used to identify items called out in the illustration.

SMR Code (Column 2). The SMR code containing supply/requisitioning information, maintenance level authorization criteria, and disposition instruction, as shown in the following breakout. This entry may be subdivided into 4 subentries, one for each service.

TABLE 1. SMR Code Explanation.

Source Code	Maintenance Code		Recoverability Code
XX	XX		X
1st two positions: How to get an item.	3rd position: Who can install, replace, or use the item.	4th position: Who can do complete repair on the item.	5th position: Who determines disposition action on unserviceable items.

NOTE

Complete Repair: Maintenance capacity, capability, and authority to perform all corrective maintenance tasks of the "Repair" function in a use/user environment in order to restore serviceability to a failed item.

Source Code. The source code tells you how to get an item needed for maintenance, repair, or overhaul of an end item/equipment. Explanations of source codes follow:

TABLE 2. Source Code Explanation.

Source Code	Application/Explanation
PA PB PC PD PE PF PG PH PR PZ	Stock items; use the applicable NSN to request/requisition items with these source codes. They are authorized to the level indicated by the code entered in the third position of the SMR code. **NOTE** Items coded PC are subject to deterioration.
KD KF KB	Items with these codes are not to be requested/requisitioned individually. They are part of a kit which is authorized to the maintenance level indicated in the third position of the SMR code. The complete kit must be requisitioned and applied.
MF - Made at maintainer class MH - Made at below depot sustainment class ML - Made at SRA MD - Made at depot MG - Navy only	Items with these codes are not to be requested/requisitioned individually. They must be made from bulk material which is identified by the P/N in the DESCRIPTION AND USABLE ON CODE (UOC) entry and listed in the bulk material group work package of the RPSTL. If the item is authorized to you by the third position code of the SMR code, but the source code indicates it is made at a higher level, order the item from the higher level of maintenance.

Source Code	Application/Explanation
AF - Assembled by maintainer class AH - Assembled by below depot sustainment class AL - Assembled by SRA AD - Assembled by depot AG - Navy only	Items with these codes are not to be requested/requisitioned individually. The parts that make up the assembled item must be requisitioned or fabricated and assembled at the level of maintenance indicated by the source code. If the third position of the SMR code authorizes you to replace the item, but the source code indicates the item is assembled at a higher level, order the item from the higher level of maintenance.
XA	Do not requisition an “XA” coded item. Order the next higher assembly. (Refer to NOTE below).
XB	If an item is not available from salvage, order it using the CAGEC and P/N.
XC	Installation drawings, diagrams, instruction sheets, field service drawings; identified by manufacturer’s P/N.
XD	Item is not stocked. Order an XD-coded item through local purchase or normal supply channels using the CAGEC and P/N given, if no NSN is available.

NOTE

Cannibalization or controlled exchange, when authorized, may be used as a source of supply for items with the above source codes except for those source coded “XA” or those aircraft support items restricted by requirements of AR 750-1.

Maintenance Code. Maintenance codes tell you the level(s) of maintenance authorized to use and repair support items. The maintenance codes are entered in the third and fourth positions of the SMR code as follows:

Third Position. The maintenance code entered in the third position tells you the lowest maintenance level authorized to remove, replace, and use an item. The maintenance code entered in the third position will indicate authorization to the following levels of maintenance:

Maintenance Code	Application/Explanation
C -	Crew
F -	Maintainer maintenance can remove, replace, and use item.
H -	Below Depot Sustainment maintenance can remove, replace, and use item.
L -	Specialized repair activity can remove, replace, and use item.
G -	Afloat and ashore intermediate maintenance can remove, replace, and use item (Navy only).
K -	Contractor facility can remove, replace, and use item.
Z -	Item is not authorized to be removed, replaced, or used at any maintenance level.
D -	Depot can remove, replace, and use item.

NOTE

Army will use C in the third position. However, for joint service publications, other services may use O.

Fourth Position. The maintenance code entered in the fourth position tells you whether or not the item is to be repaired and identifies the lowest maintenance class with the capability to do complete repair (perform all authorized repair functions).

Maintenance Code	Application/Explanation
C -	Crew (operator) is the lowest class that can do complete repair.
F -	Maintainer is the lowest class that can do complete repair of item.
H -	Below Depot Sustainment is the lowest class that can do complete repair of item.
L -	Specialized repair activity is the lowest class that can do complete repair of item.
D -	Depot is the lowest class that can do complete repair of item.
G -	Both afloat and ashore intermediate levels are capable of complete repair of item (Navy only).
K -	Complete repair is done at contractor facility.
Z -	Nonrepairable. No repair authorized.
B -	No repair authorized. No parts or special tools are authorized for maintenance of “B” coded item. However, the item may be reconditioned by adjusting, lubricating, etc., at the user level.

Recoverability Code. Recoverability codes are assigned to items to indicate the disposition action on unserviceable items. The recoverability code is shown in the fifth position of the SMR code as follows:

Recoverability Code	Application/Explanation
Z -	Nonrepairable item. When unserviceable, condemn and dispose of the item at the level of maintenance shown in the third position of the SMR code.
F -	Repairable item. When uneconomically repairable, condemn and dispose of item at the field level.
H -	Repairable item. When uneconomically repairable, condemn and dispose of item at the below Depot Sustainment level.
D -	Repairable item. When beyond lower level repair capability, return to depot. Condemnation and disposal of item are not authorized below depot level.
L -	Repairable item. Condemnation and disposal of item not authorized below Specialized Repair Activity (SRA).
A -	Item requires special handling or condemnation procedures because of specific reasons (e.g., precious metal content, high dollar value, critical material, or hazardous material). Refer to appropriate manuals/directives for specific instructions.
G -	Field level repairable item. Condemn and dispose at either afloat or ashore intermediate levels (Navy only).
K -	Repairable item. Condemnation and disposal to be performed at contractor facility.

NSN - (Column (3)). The NSN(s) for the item is listed in this column.

CAGEC (Column (4)). The Commercial and Government Entity Code (CAGEC) is a five-digit code which is used to identify the manufacturer, distributor, or Government agency/activity that supplies the item.

PART NUMBER (Column (5)). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity), which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items.

NOTE

When you use an NSN to requisition an item, the item you receive may have a different part number from the part listed.

DESCRIPTION AND USABLE ON CODE (UOC) (Column (6)). This column includes the following information:

1. The Federal item name and, when required, a minimum description to identify the item.
2. Part numbers of bulk materials required if the item is to be locally manufactured or fabricated.
3. Hardness Critical Item (HCI). Items that require special handling or procedures to ensure protection against electromagnetic pulse (EMP) damage are marked with the letters 'HCI."
4. The statement END OF FIGURE appears below the last item description in column (6) for each Figure in the repair parts list, special tools repair parts, kits, bulk items, and special tools list work packages.
5. Refer to Usable on Code details presented later in this work package under SPECIAL INFORMATION.

QTY (Column (7)). The QTY (quantity per Figure) column indicates the quantity of the item used in the breakout shown on the illustration/figure. A "V" appearing in this column instead of a quantity indicates that the quantity is variable and quantity may change from application to application.

EXPLANATION OF CROSS-REFERENCE INDEXES WORK PACKAGES FORMAT AND COLUMNS

1. National Stock Number (NSN) Index Work Package. NSNs in this index are listed in National Item Identification Number (NIIN) sequence.

STOCK NUMBER Column. This column lists the NSN in NIIN sequence. The NIIN consists of the last nine digits of the NSN. When using this column to locate an item, ignore the first four digits of the NSN. However, the complete NSN should be used when ordering items by stock number.

For example, if the NSN is 5385-01-574-1476, the NIIN is 01-574-1476.

FIG. Column. This column lists the number of the Figure where the item is identified/located. The Figures are in numerical order in the repair parts list and special tools list work packages.

ITEM Column. This column identifies the item associated with the Figure listed in the adjacent FIG. column. This item is also identified by the NSN listed on the same line.

2. Part Number (P/N) Index Work Package. Part numbers in this index are listed in ascending alphanumeric sequence (vertical arrangement of letter and number combinations which places the first letter or digit of each group in order A through Z, followed by the numbers 0 through 9 and each following letter or digit in like order).

PART NUMBER Column. This column indicates the part number assigned to the item.

FIG. Column. This column lists the number of the Figure where the item is identified/located in the repair parts list and special tools list work packages.

ITEM Column. The item number is the number assigned to the item as it appears in the Figure referenced in the adjacent Figure number column.

SPECIAL INFORMATION

UOC. The UOC appears in the lower left corner of the Description Column heading. Usable on codes are shown as "UOC:" in the Description Column (justified left) on the first line under the applicable item/nomenclature. Uncoded items are applicable to all models. Examples of the UOCs used in the RPSTL are:

Code	Used On
	Not applicable for this system

Fabrication Instructions. Bulk materials required to manufacture items are listed in the bulk material work package of this RPSTL. Part numbers for bulk material are also referenced in the Description Column of the line item entry

for the item to be manufactured/fabricated. Detailed fabrication instructions for items source coded to be manufactured or fabricated are found in (Not Applicable for this System).

Index Numbers. Items which have the word BULK in the Figure column will have an index number shown in the item number column. This index number is a cross-reference between the NSN/Part Number (P/N) Index work packages and the bulk material list in the bulk items work package.

HOW TO LOCATE REPAIR PARTS

1. When NSNs or Part Numbers Are Not Known.

First. Using the table of contents, determine the assembly group to which the item belongs. This is necessary since Figures are prepared for assembly groups and subassembly groups, and lists are divided into the same groups.

Second. Find the Figure covering the functional group or the subfunctional group to which the item belongs.

Third. Identify the item on the Figure and note the number(s).

Fourth. Look in the repair parts list work packages for the Figure and items numbers. The NSNs and part numbers are on the same line as the associated item numbers.

2. When NSN is Known.

First. If you have the NSN, look in the STOCK NUMBER column of the NSN index work package. The NSN is arranged in NIIN sequence. Note the Figure and item number next to the NSN.

Second. Turn to the Figure and locate the item number. Verify that the item is the one for which you are looking.

3. When Part Number is Known.

First. If you have the part number and not the NSN, look in the PART NUMBER column of the part number index work package. Identify the Figure and item number.

Second. Look up the item on the Figure in the applicable repair parts list work package.

ABBREVIATIONS

Abbreviation	Explanation
NIIN	National Item Identification Number (consists of the last 9 digits of the NSN)
NSN	National Stock Number
RPSTL	Repair Parts and Special Tools Lists
SMR	Source, Maintenance, and Recoverability Code
TMDE	Test, Measurement, and Diagnostic Equipment

END OF WORK PACKAGE

FIELD MAINTENANCE

MFS TRM S-ARC

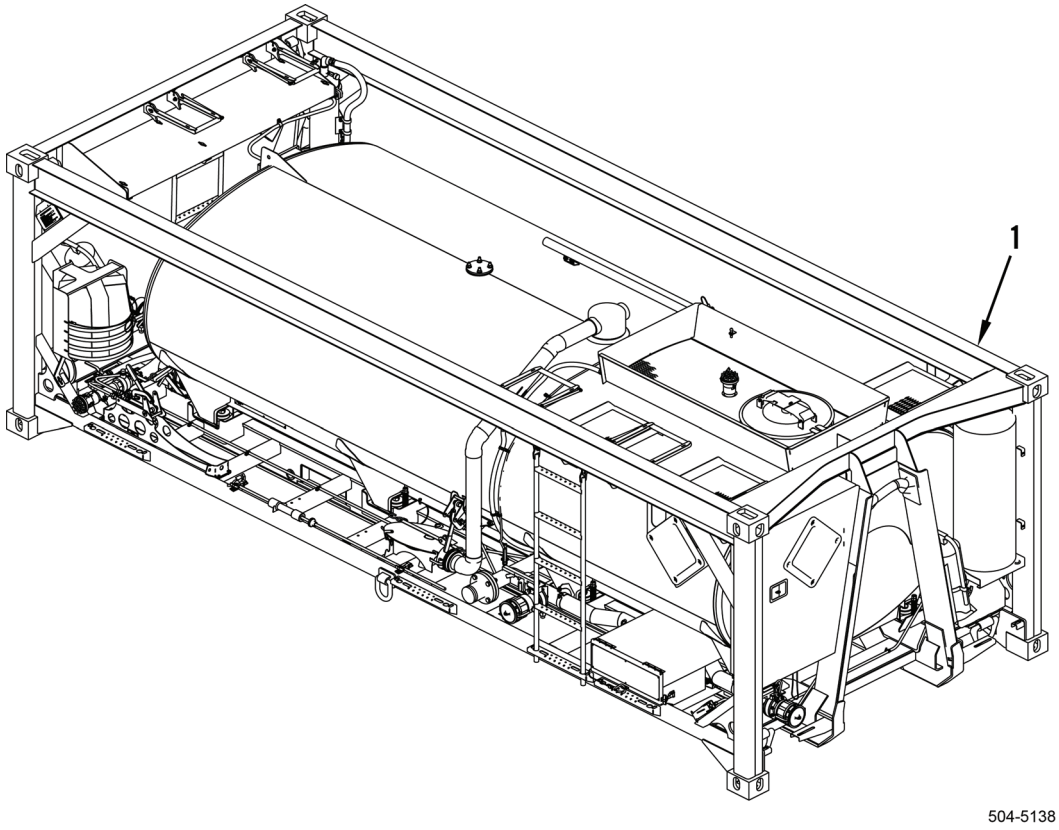


Figure 1. MFS TRM S-ARC.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 00	
					FIG. 1 MFS TRM S-ARC	
1	PDFFF	4930016012624	80195	5252578	TANK UNIT,FUEL DISPENSING,TRUCK MOUNTING (MFS TRM S-ARC).....	1
					END OF FIGURE	

FIELD MAINTENANCE

DISCHARGE PIPING ASSEMBLY

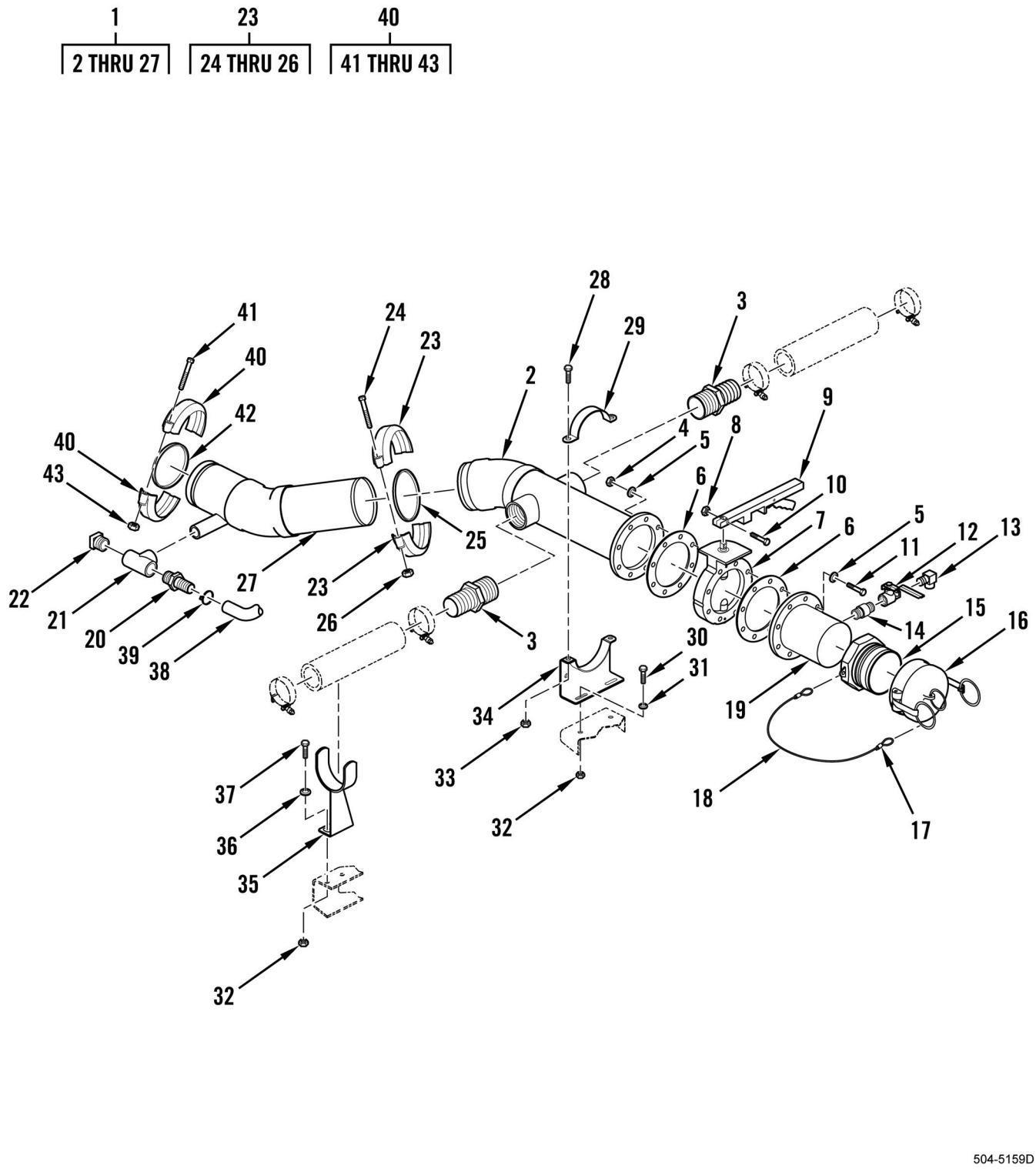


Figure 2. Discharge Piping Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 01	
					FIG. 2 DISCHARGE PIPING ASSEMBLY	
1	PAFFF	4710016325475	80195	5252584	PIPE ASSEMBLY,METAL ASSEMBLY (REAR DISCHARGE PIPE ASSEMBLY)	1
2	PBFZZ	4710015960962	80195	5251140	.PIPE ASSEMBLY,METAL	1
3	PAFZZ	4730016199441	39428	5363K76	.ADAPTER, STRAIGHT, HOSE (2 IN.)	2
4	PAFZZ	5310015092488	81349	M45913/3-6CG8C	.NUT,SELF-LOCKING,HEXAGON	8
5	PAFZZ	5310010831540	39428	98026A031	.WASHER,FLAT	16
6	PAFZZ	5330015845294	80195	6000065	.GASKET	2
7	PAFFF	4820015954236	11817	WD404 AL V	.VALVE,BUTTERFLY (V7)	1
8	PAFZZ	5310008807744	49181	36103	..NUT,PLAIN,HEXAGON	1
9	PAFZZ	5340015047309	13226	26284AL	..LEVER,MANUAL CONTROL	1
10	PAFZZ	5305015047427	13226	9Q5884	..SCREW,CAP,HEXAGON HEAD	1
11	PAFZZ	5305016326882	80195	0180137-CR	.SCREW,HEXAGON (BOLT)	8
12	PAFZZ	4820015959891	80195	6603089	.VALVE,BALL (VB2)	1
13	PAFZZ	4730015844590	39428	4464K37	.ELBOW,PIPE(0.375,NPT)	1
14	PAFZZ	4730004193016	54938	6-6-MCN-SS	.NIPPLE,PIPE	1
15	PAFZZ	4730015956077	80195	6000855	.COUPLING HALF,QUICK DISCONNECT	1
16	PAFZZ	4730006406156	58536	AA59326IX-9	.CAP,QUICK DISCONNECT	1
17	PAFZZ	3120015885497	80195	6001724	.BUSHING,SLEEVE	2
18	MFFZZ		80195	5252293	.ROPE,WIRE (MAKE FROM P/N M83420/2-002, CUT TO LENGTH)	1
19	PAFZZ	4710015863126	80195	5250882	.PIPE ASSEMBLY,METAL (BOTTOM DISCHARGE OUTPUT)	1
20	PAFZZ	5340015842080	80195	6200971	.STANDOFF,THREADED,SPACING	1
21	PAFZZ	4730013470810	39428	4464K53	.TEE,PIPE	1
22	PAFZZ	4730015961791	80195	L238039	.PLUG,PIPE	1
23	PAFZZ	4730015852428	80195	6603464	.COUPLING,PIPE	1
24	PAFZZ	5305016452437	80195	6002389	..SCREW,CAP,HEXAGON HEAD (BOLT)	2
25	PAFZZ	5330015182027	79154	G014077LT0	..GASKET	1
26	PAFZZ	5310015899667	80195	6002390	..NUT,PLAIN,EXTENDED WASHER,HEXAGON	2
27	PAFFF	4710015863080	80195	5251314	.PIPE ASSEMBLY,METAL (DISCHARGE)	1
28	PAFZZ	5305015048942	39428	92865A626	SCREW,CAP,HEXAGON HEAD (BOLT)	2
29	PAFZZ	5340015956018	80195	5250890	STRAP,RETAINING	1
30	PAFZZ	5305015294402	2V507	92865A540	SCREW,CAP,HEXAGON HEAD (BOLT)	2
31	PAFZZ	5310010836490	80195	0120217	WASHER,FLAT	2
32	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	4
33	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	2
34	PBFZZ	5340015964309	81095	5251085	BRACKET,MOUNTING	1
35	PAFZZ	5340015938136	80195	5251697	BRACKET,MOUNTING	1
36	PAFZZ	5310015913820	80195	0446363	WASHER,FLAT	2
37	PAFZZ	5305015955944	80195	0180122	SCREW,CAP,HEXAGON HEAD (BOLT)	2
38	MFFZZ		80195	5252553	HOSE,PREFORMED (MAKE FROM P/N B716, CUT TO LENGTH)	1
39	PAFZZ	4730016326584	30119	5016	CLAMP,HOSE	2
40	PAFFF	4730015852428	80195	6603464	COUPLING,PIPE	1
41	PAFZZ	5305016452437	80195	6002389	.SCREW,CAP,HEXAGON HEAD (BOLT)	2

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
42	PAFZZ	5330015182027	79154	G014077LT0	.GASKET	1
43	PAFZZ	5310015899667	80195	6002390	.NUT,PLAIN,EXTENDED WASHER,HEXAGON	2

END OF FIGURE

FIELD MAINTENANCE

LEFT HAND OR RIGHT HAND DISCHARGE ARM

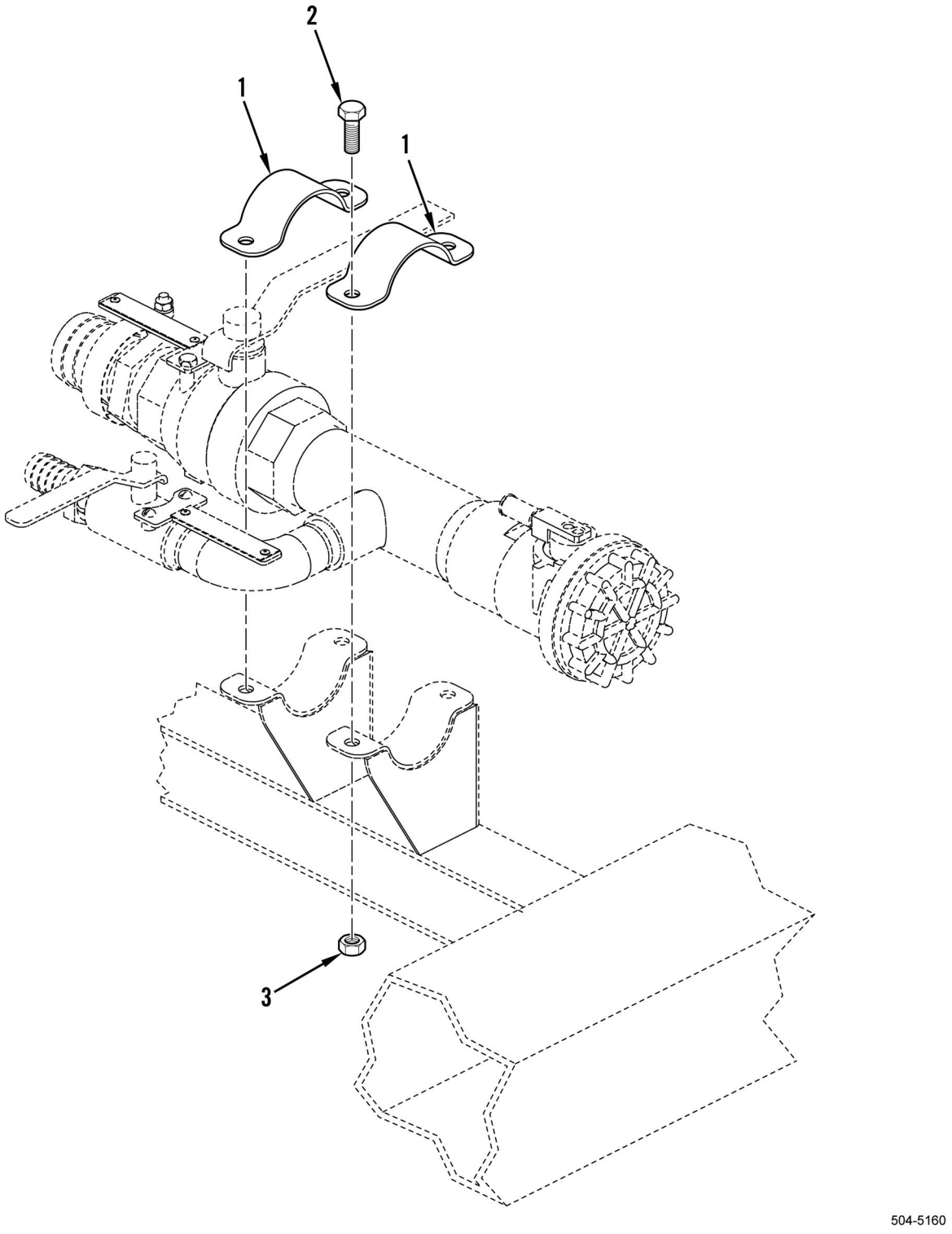


Figure 3. Left Hand or Right Hand Discharge Arm (Sheet 1 of 2).

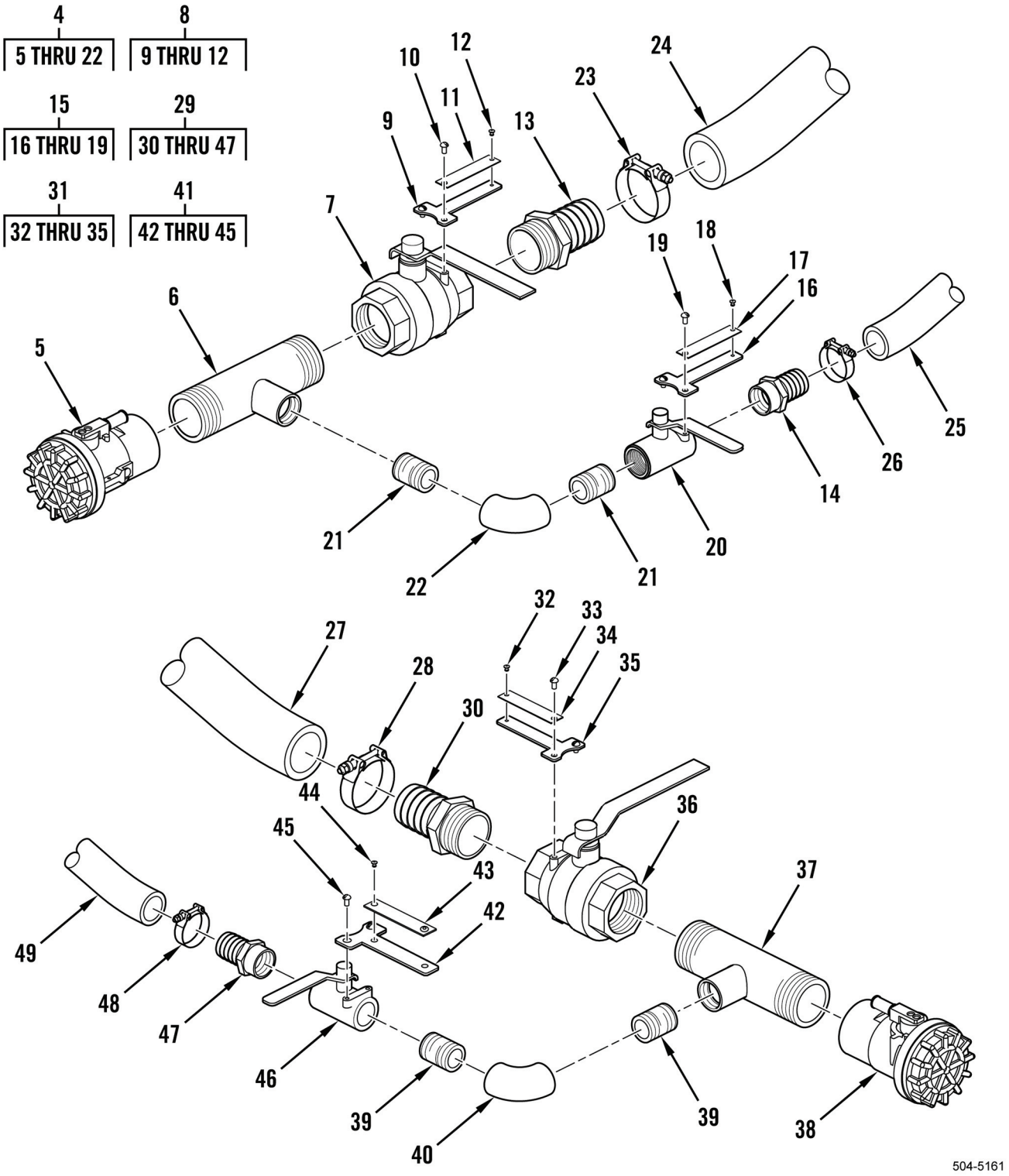


Figure 3. Left Hand or Right Hand Discharge Arm (Sheet 2 of 2).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 01	
					GROUP 0103	
					FIG. 3 LEFT HAND OR RIGHT HAND DISCHARGE ARM	
1	PBFZZ	5340015928255	80195	5250929	STRAP,RETAINING	2
2	PAFZZ	5305015955944	80195	0180122	SCREW,CAP HEXAGON HEAD	8
3	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	8
4	PAFFF	4310015894622	80195	5251318	VALVE,REED (DISCHARGE ASSEMBLY,LEFT HAND)	1
5	PAFFF	4730012595838	61125	USC10013	.COUPLING HALF,QUICK DISCONNECT (V11, SEE FIGURE 4 FOR PARTS BREAKDOWN)	1
6	PBFZZ	4730015961770	80195	5251320	.TEE,PIPE TO TUBE	1
7	PAFZZ	4820015691119	1G3R1	VSS200SS	.BALL,VALVE,PORTED (V3, 2 IN.)	1
8	PAFZZ	9905015856162	80195	5251559	.PLATE SET,INSTRUCTION (V3)	1
9	XBFZZ		80195	5251099	..BRACKET,DATA PLATE	1
10	PAFZZ	5306015333783	39428	92865A537	..BOLT,MACHINE	2
11	PAFZZ	9905015867046	80195	5251026	..PLATE,INSTRUCTION	1
12	PAFZZ	5320001299706	81349	M24243/1-F402	..RIVET,BLIND	2
13	XAFZZ	4730016199441	39428	5363K76	.ADAPTER,STRAIGHT,HOSE BARB	1
14	PAFZZ	5340015842080	80195	6200971	.STANDOFF,THREADED,SPACING	1
15	PAFZZ		80195	5251560	.DISCHARGE VALVE ID (V9)	1
16	XBFZZ		80195	5250328	..BRACKET,DATA PLATE	1
17	PAFZZ	9905015867044	80195	5251025	..PLATE,INSTRUCTION	1
18	PAFZZ	5320001299706	81349	M24243/1-F402	..RIVET,BLIND	2
19	PAFZZ	5305016324783	80195	6100669	..SCREW,MACHINE	2
20	PAFZZ	4820015839418	80195	6603579	.VALVE,BALL (V9, 1 IN. SS)	1
21	PAFZZ	4730009750324	39428	4830K221	.NIPPLE,PIPE	2
22	PAFZZ	4730015975176	39428	4464K16	.ELBOW,PIPE	1
23	PAFZZ	5340016452450	72661	TBC288	CLAMP,LOOP (HOSE CLAMP)	1
24	MFFZZ		80195	5252370	HOSE,NONMETALLIC (MAKE FROM P/N 6200963,CUT TO LENGTH)	1
25	MFFZZ		80195	5252556	HOSE, PREFORMED (MAKE FROM P/N B716,CUT TO LENGTH)	1
26	PAFZZ	4730016326584	30119	5016	CLAMP,HOSE	1
27	MFFZZ		80195	5252371	HOSE,NONMETALLIC (MAKE FROM P/N 6200963,CUT TO LENGTH)	1
28	PAFZZ	5340016452450	72661	TBC288	CLAMP,LOOP (HOSE CLAMP)	1
29	PAFFF	4310016452978	80195	5251321	DISCHARGE ASSEMBLY (RIGHT HAND)	1
30	PAFZZ	4730016199441	39428	5363K76	.ADAPTER,STRAIGHT,HOSE (HOSE BARB)	1
31	PAFZZ		80195	5251558	.DISCHARGE VALVE ID (V4)	1
32	PAFZZ	5306015333783	39428	92865A537	..BOLT,MACHINE	2
33	PAFZZ	5320001299706	81349	M24243/1-F402	..RIVET,BLIND	2
34	PAFZZ	9905015867047	80195	5251027	..PLATE,INSTRUCTION	1
35	XBFZZ		80195	5251099	..BRACKET,DATA PLATE	1
36	PAFZZ	4820015691119	1G3R1	VSS200SS	.BALL,VALVE,PORTED (V4, 2 IN.)	1
37	PBFZZ	4730015961770	80195	5251320	.TEE,PIPE TO TUBE	1
38	PAFFF	4730012595838	61125	USC10013	.COUPLING HALF,QUICK DISCONNECT (SEE FIGURE 4 FOR PARTS BREAKDOWN)	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
39	PAFZZ	4730009750324	39428	4830K221	.NIPPLE,PIPE	2
40	PAFZZ	4730015975176	39428	4464K16	.ELBOW,PIPE	1
41	PAFZZ		80195	5251561	.DISCHARGE VALVE ID (V8)	1
42	XBFZZ		80195	5250328	..BRACKET,DATA PLATE	1
43	PAFZZ	9905015867048	80195	5251028	..PLATE,INSTRUCTION	1
44	PAFZZ	5320001299706	81349	M24243/1-F402	..RIVET,BLIND	2
45	PAFZZ	5305016324783	80195	6100669	..SCREW,MACHINE	2
46	PAFZZ	4820015839418	80195	6603579	.VALVE,BALL (V8, 1 IN. SS)	1
47	PAFZZ	5340015842080	80195	6200971	.STANDOFF,THREADED	1
48	PAFZZ	4730016326584	30119	5016	CLAMP,HOSE	1
49	MFFZZ		80195	5252557	HOSE, PREFORMED (MAKE FROM P/N B716,CUT TO LENGTH)	1

END OF FIGURE

FIELD MAINTENANCE

QUICK-DISCONNECT COUPLING

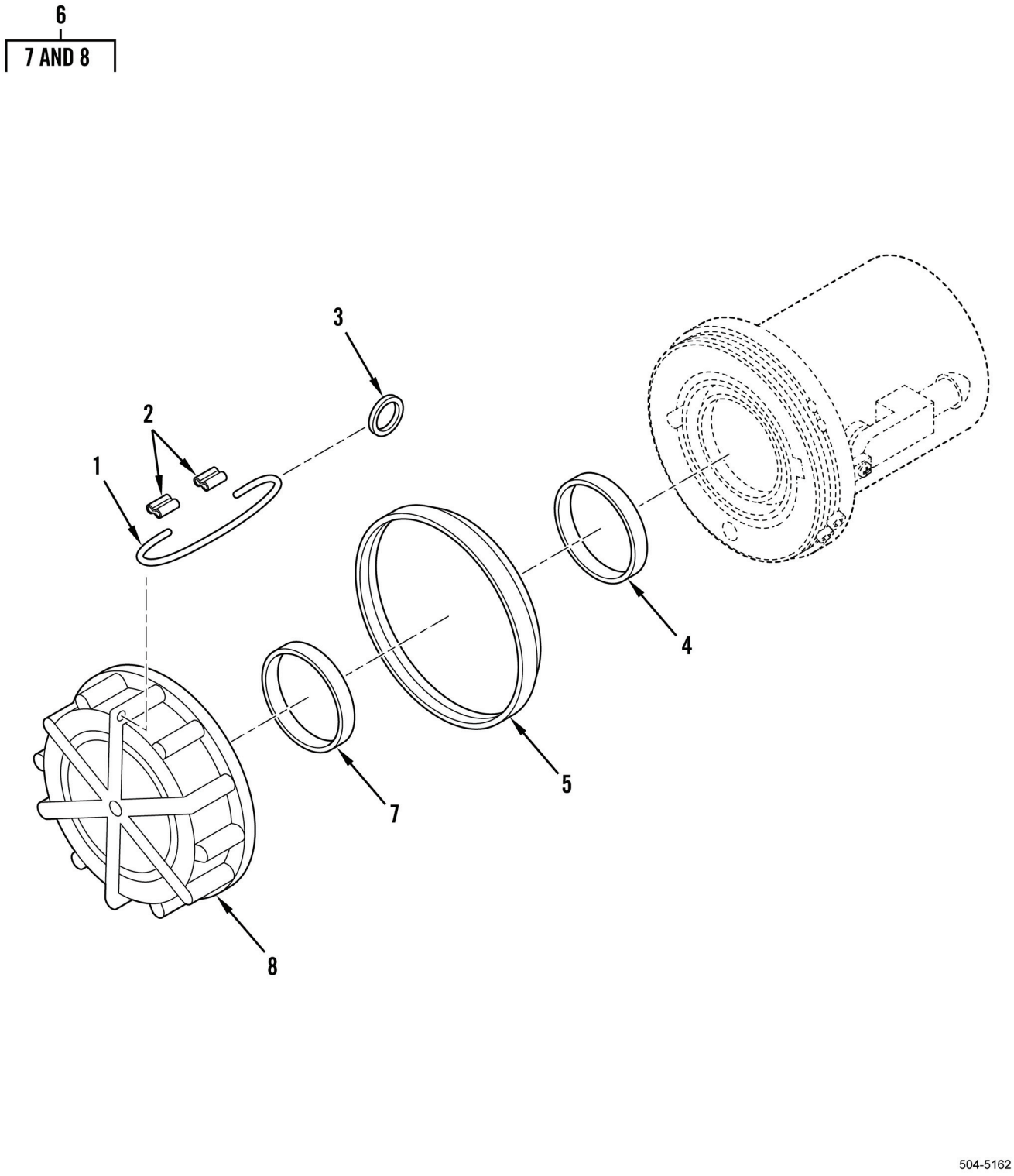


Figure 4. Quick-Disconnect Coupling.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 01	
					GROUP 010301	
					FIG. 4 QUICK-DISCONNECT COUPLING	
1	PAFZZ	4010005756233	81349	M83420/4-010	ROPE,WIRE	1
2	PAFZZ	4030015167545	53711	5793250 FIND 326	SWAGING SLEEVE,WIRE ROPE	2
3	PAFZZ	5340015150537	39428	86805T38	HOLDER,KEY (SPLIT RING)	1
4	PCCZZ	5330016413634	61125	RJ0009	SEAL,INTERFACE	1
5	PCCZZ	2510016413811	61125	RJ0001	CAP,BUMPER	1
6	PAFFF	5340016452593	61125	RJA1003	CAP,PROTECTIVE,DUST AND MOISTURE SEAL (DUST CAP)	1
7	PCCZZ	5330016413634	61125	RJ0009	.SEAL,INTERFACE	1
8	PAFZZ	4730016452589	61125	RJ0015	.CAP,QUICK DISCONNECT	1
					END OF FIGURE	

FIELD MAINTENANCE

NON-VALVED UNISEX COUPLING

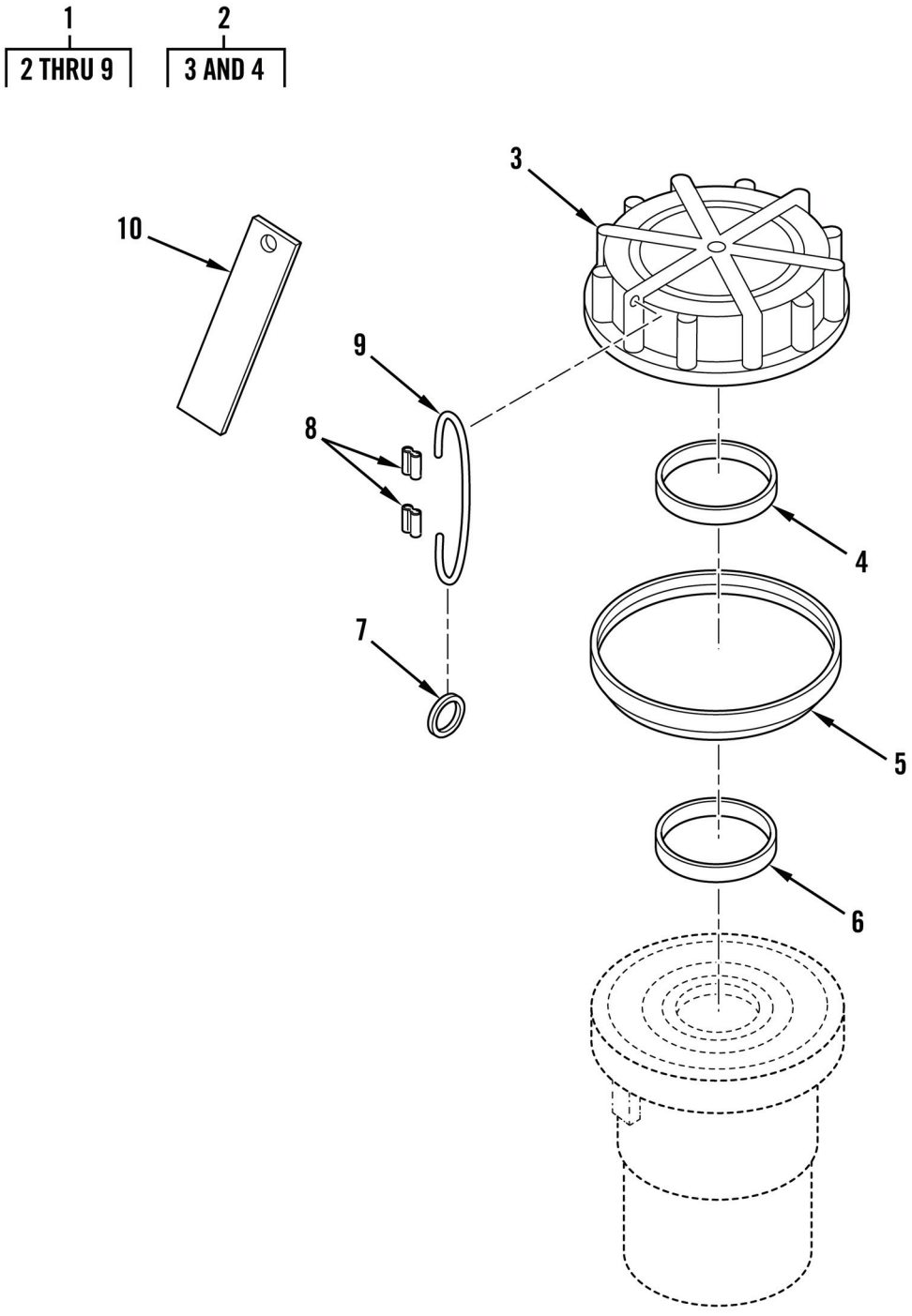


Figure 5. Non-Valved Unisex Couplings.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 02	
					FIG. 5 NON-VALVED UNISEX COUPLING	
1	PAFFF	4730016329591	61125	USC10113	COUPLING HALF,QUICK DISCONNECT (NON-VALVED UNISEX)	1
2	PAFFF	5340016452593	61125	RJA1003	.CAP,PROTECTIVE,DUST AND MOISTURE SEAL (DUST CAP)	1
3	PAFZZ	4730016452589	61125	RJ0015	..CAP,QUICK DISCONNECT	1
4	PCCZZ	5330016413634	61125	RJ0009	..SEAL,INTERFACE	1
5	PCCZZ	2510016413811	61125	RJ0001	.CAP,BUMPER	1
6	PCCZZ	5330016413634	61125	RJ0009	.SEAL,INTERFACE	1
7	PAFZZ	5340015150537	39428	86805T38	.HOLDER,KEY (SPLIT RING)	1
8	PAFZZ	4030015167545	53711	5793250 FIND 326	.SWAGING SLEEVE,WIRE ROPE	2
9	PAFZZ	4010005756233	81349	M83420/4-010	.ROPE,WIRE	1
10	PAFZZ	9905015867041	80195	5251112	PLATE,INSTRUCTION	1
					END OF FIGURE	

FIELD MAINTENANCE

FUEL PUMP ASSEMBLY

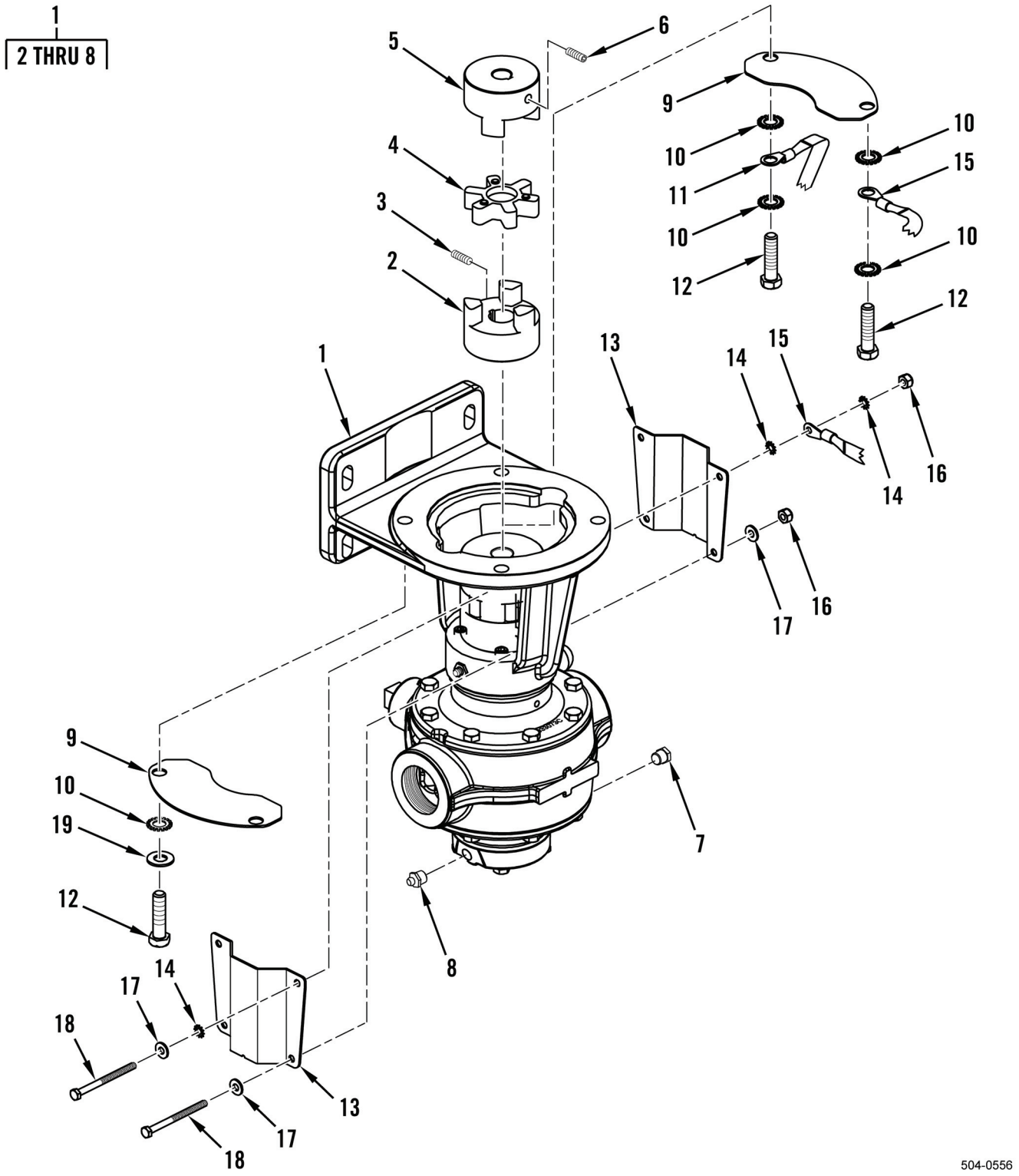


Figure 6. Fuel Pump Assembly (Sheet 1 of 3).

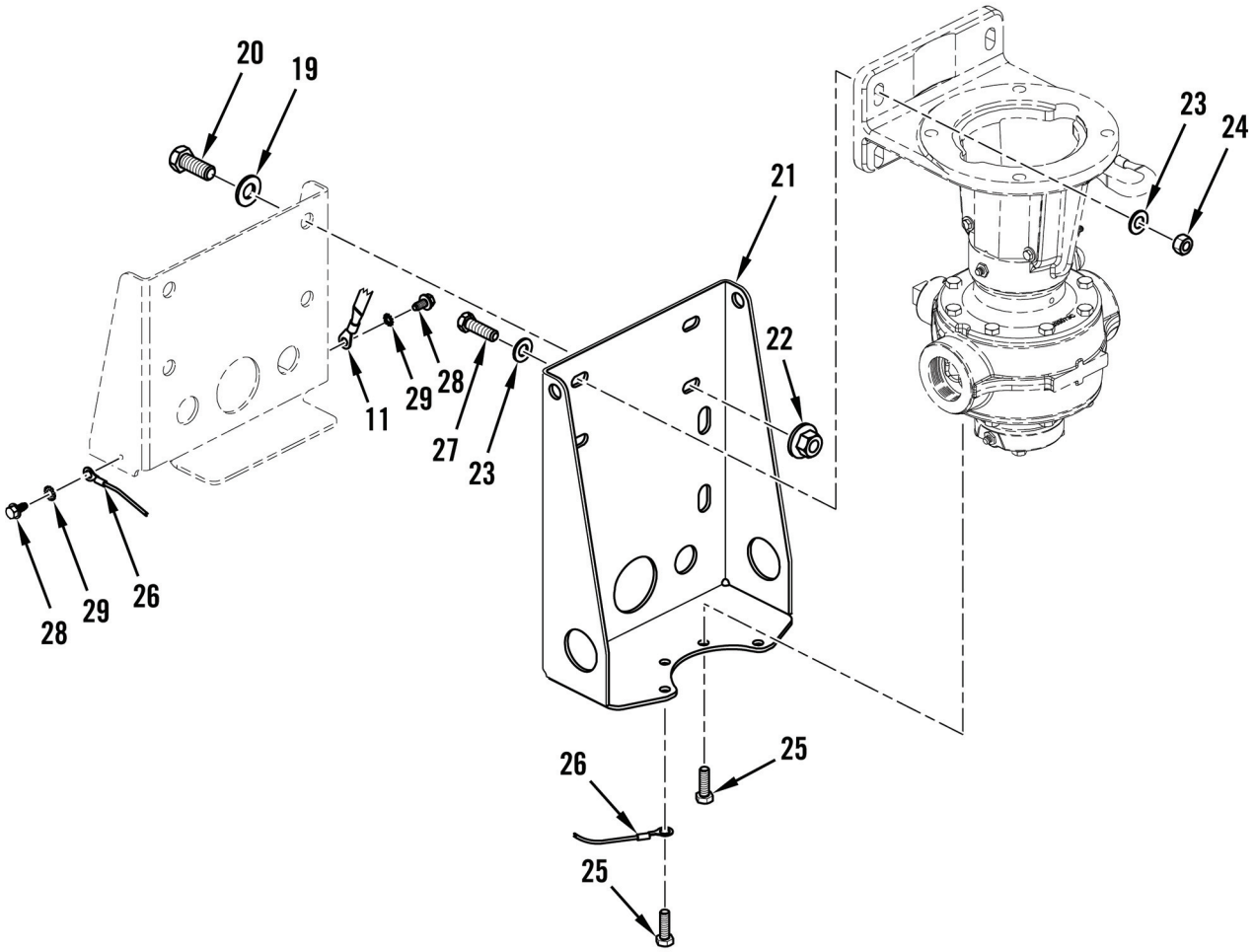


Figure 6. Fuel Pump Assembly (Sheet 2 of 3).

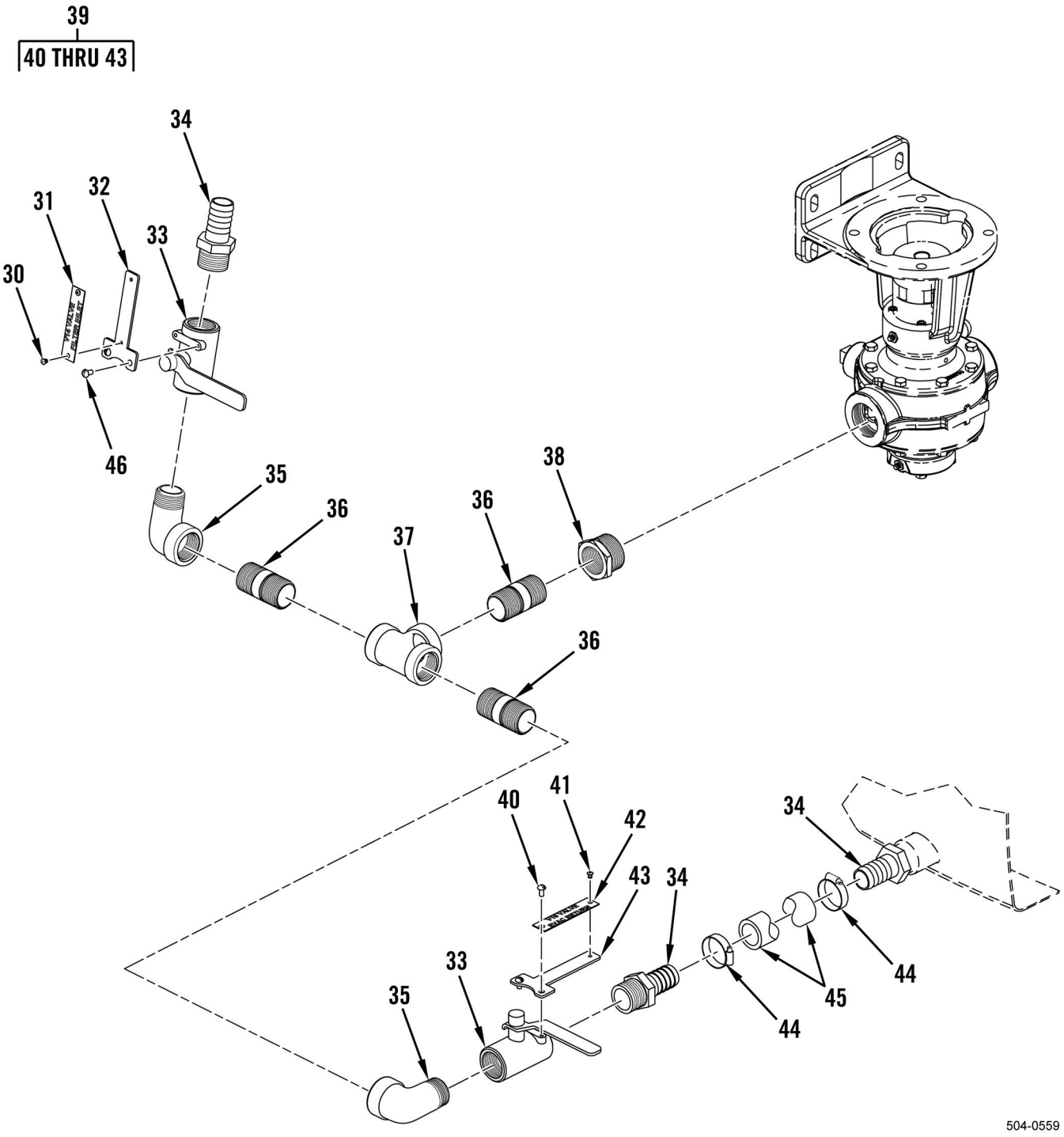


Figure 6. Fuel Pump Assembly (Sheet 3 of 3).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 03	
					FIG. 6 FUEL PUMP ASSEMBLY	
1	PAFZZ	2910016412646	1S3F8	872926	PUMP,FUEL	1
2	XAFZZ		07524	906146	.COUPLING HALF,SHAFT	1
3	PAFZZ	5305007239385	96906	MS51963-65	..SETSCREW	1
4	PAFZZ	3010015224586	07524	906155	.INSERT,FLEXABLE COUPLING	1
5	PAFFF	3010015224575	07524	906147	.COUPLING HALF,SHAFT	1
6	PAFZZ	5305007239385	96906	MS51963-65	..SETSCREW	1
7	PAFZZ	4930006723513	07524	701992	.RELIEF	2
8	PAFZZ	4930006723509	07524	317815	.FITTING	2
9	PAFZZ	5340016452994	80195	5252633	COVER,ACCESS (ENDPLATE, PUMP SHIELD)	2
10	PAFZZ	5310013578847	39428	91114A031	WASHER,LOCK	6
11	PAFZZ	5999016452997	80195	5252637	STRAP-GROUND,12 IN.	1
12	PAFZZ	5306011939197	39428	91247A628	BOLT,MACHINE	4
13	PAFZZ	5340016452991	80195	5252634	COVER,HYDRAULIC,PUMP (SIDEPLATE-PUMP SHIELD)	2
14	PAFZZ	5310015606893	39428	91114A011	WASHER,LOCK	3
15	PAFZZ	5999016452988	80195	5252636	STRAP-GROUND,6 IN.	1
16	PAFZZ	5310014634929	39428	91831A011	NUT,SELF-LOCKING,HEXAGON	4
17	PAFZZ	5310016326508	80195	0120391-CR	WASHER,FLAT	7
18	PAFZZ	5305016452979	80195	6002249	SCREW,CAP,HEXAGON HEAD (BOLT)	4
19	PAFZZ	5310015088932	39428	90126A033	WASHER,FLAT	4
20	PAFZZ	5305015335700	39428	92865A714	SCREW,CAP,HEXAGON (BOLT)	4
21	XBFZZ		80195	5252571	BRACKET,PUMP	1
22	PAFZZ	5310015886075	39428	98233A400	NUT,PLAIN,EXTENDED	4
23	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	10
24	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	4
25	PAFZZ	5305015834142	39428	92865A107	SCREW,CAP,HEXAGON HEAD (BOLT)	4
26	PAFZZ	5999016452986	80195	5252572	JUMPER WIRE	1
27	PAFZZ	5305015048942	39428	92865A626	SCREW,CAP,HEXAGON HEAD	4
28	PAFZZ	5305015877081	39428	96024A410	SCREW,TAPPING	2
29	PAFZZ	5310013578845	39428	91114A029	WASHER,LOCK	2
30	PAFZZ	5320001299706	81349	M24243/1-F402	RIVET,BLIND	2
31	PAFZZ	7690016452990	80195	5252564	MARKER,IDENTIFICATION (DATA PLATE,FILTER INLET)	1
32	XBFZZ		80195	5250328	BRACKET,DATA PLATE	1
33	PAFZZ	4820015839418	80195	6603579	VALVE,BALL (V10 AND V14)	2
34	PAFZZ	5340015842080	80195	6200971	STANDOFF,THREADED,SPACING (1 IN. NPT X 1 IN. HOSE BARB)	3
35	PAFZZ	4730012821685	39428	4464K41	ELBOW,PIPE	2
36	PAFZZ	4730016452982	80195	6201111	NIPPLE,PIPE	3
37	PAFZZ	4730013470810	39428	4464K53	TEE,PIPE	1
38	PAFZZ	4730016452976	80195	6201109	REDUCER,PIPE (BUSHING,PIPE)	1
39	PAFZZ	9905015867045	80195	5251562	PLATE SET,INSTRUCTION	1
40	XBFZZ	5305016324783	80195	6100669	.SCREW,MACHINE	2
41	PAFZZ	5320001299706	81349	M24243/1-F402	.RIVET,BLIND	2
42	PAFZZ	9905015867049	80195	5251029	.PLATE,INSTRUCTION	1
43	XBFZZ		80195	5250328	.BRACKET,DATA PLATE	1
44	PAFZZ	4730016326584	30119	5016	CLAMP,HOSE	2
45	MFFZZ		80195	5252554	HOSE,NONMETALLIC (MAKE FROM P/N B716, CUT TO LENGTH)	1

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
46	PAFZZ	5305016324783	80195	6100669	SCREW,MACHINE.....	2
					END OF FIGURE	

FIELD MAINTENANCE

FUEL PUMP STRAINER

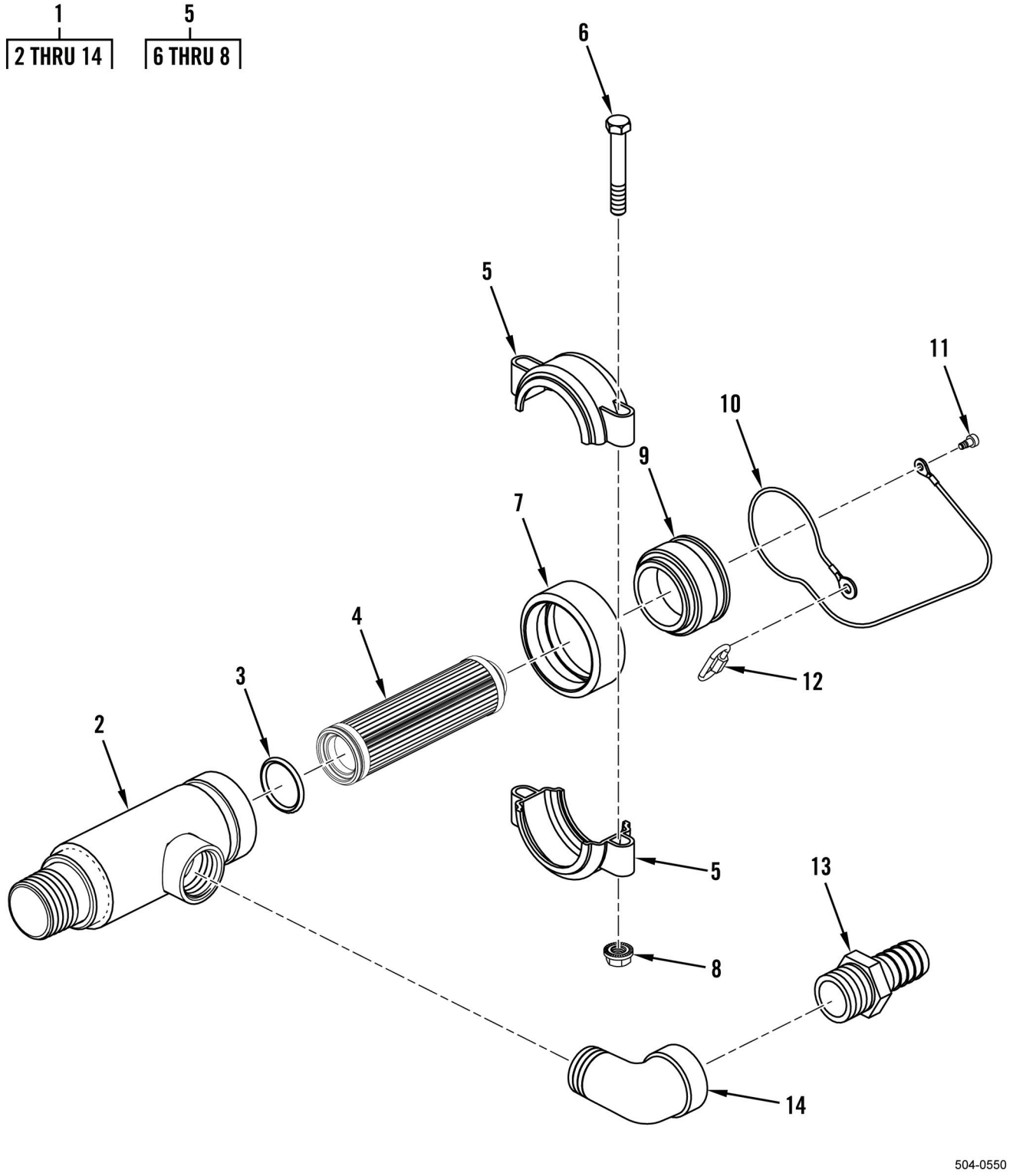


Figure 7. Fuel Pump Strainer.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 04	
					FIG. 7 FUEL PUMP STRAINER	
1	PAFFF	4730016453270	80195	5252612	STRAINER,SEDIMENT (ASSEMBLY, FUEL PUMP STRAINER)	1
2	PAFZZ	4730016453267	80195	5252609	.STRAINER,SEDIMENT (STRAINER BODY,SEDIMENT)	1
3	PCFZZ	5331002651075	46522	A2329	.O-RING	1
4	PAFZZ	4730016453266	55524	8731-01	.STRAINER,SEDIMENT (ELEMENT,STRAINER)	1
5	PAFFF	5342016453138	3HMC9	20358	.COUPLING,TWO-PIECE (CLAMP, INCLUDES TOP AND BOTTOM HALF)	1
6	PAFZZ	5305016170802	80195	0180134-CR	..SCREW,CAP,SOCKET HEAD (BOLT)	2
7	PCFZZ	5330016454963	3HMC9	10137	..GASKET,2" GROOVED	1
8	PAFZZ	5310015899667	2V507	94831A031	..NUT,PLAIN,EXTENDED	2
9	PAFZZ	4320016454857	80195	5252614	.CAP,END,PUMP STRAINER	1
10	PAFZZ	4010015897391	80195	6001991	.WIRE ROPE ASSEMBLY	1
11	PAFZZ	5305015913920	80195	6100740	.SCREW,CAP,SOCKET HEAD	1
12	PAFZZ	4010012041128	39428	8947T14	.LINK,DETACHABLE	1
13	PAFZZ	5340015842080	80195	6200971	.STANDOFF,THREADED (BARB FITTING)	1
14	PAFZZ	4730012821685	39428	4464K41	.ELBOW,PIPE	1
					END OF FIGURE	

FIELD MAINTENANCE

MOTOR ASSEMBLY

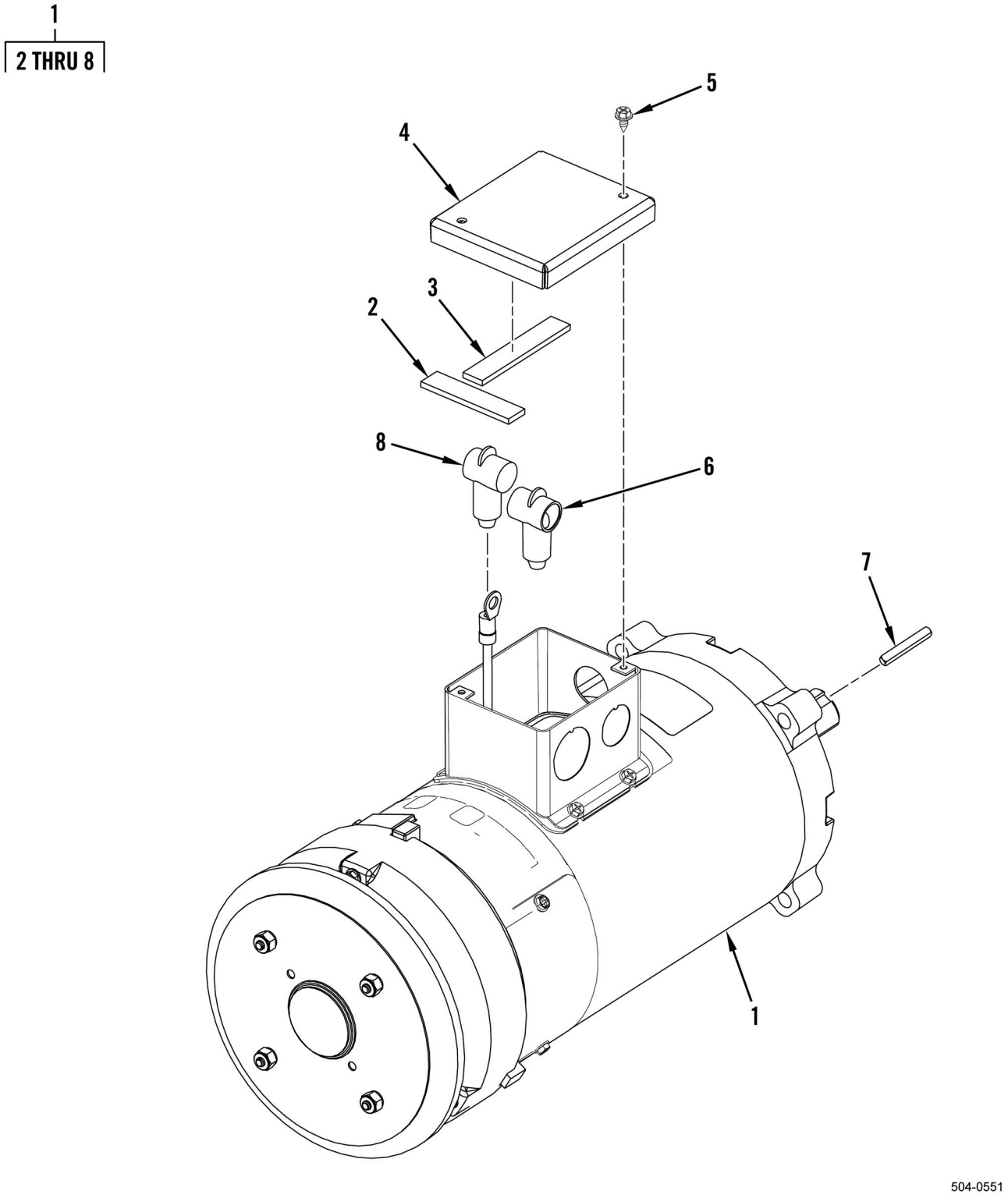


Figure 8. Motor Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 05	
					FIG. 8 MOTOR ASSEMBLY	
1	PAFFF	6105016325479	80195	5252629	MOTOR,DIRECT CURRENT.....	1
2	PCFZZ	5330016327903	80195	5252630	.GASKET (COVER,TOP/BOTTOM)	2
3	PCFZZ	5330016327897	80195	5252635	.GASKET (COVER,SIDE)	2
4	PAFZZ	2920016326512	80195	5252628	.COVER,ELECTRIC MOTOR.....	1
5	PAFZZ	5305016455118	56065	00911801	.SCREW,MACHINE	2
6	PAFZZ	5940015723058	7Z043	214N1V02	.BOOT,CABLE RED	1
7	XDFZZ		56065	006002.01	.KEY,WOODRIFF.....	1
8	PAFZZ	5940015723425	7Z043	214N1V14	.BOOT,CABLE BLACK	1
					END OF FIGURE	

FIELD MAINTENANCE

FLOW METER

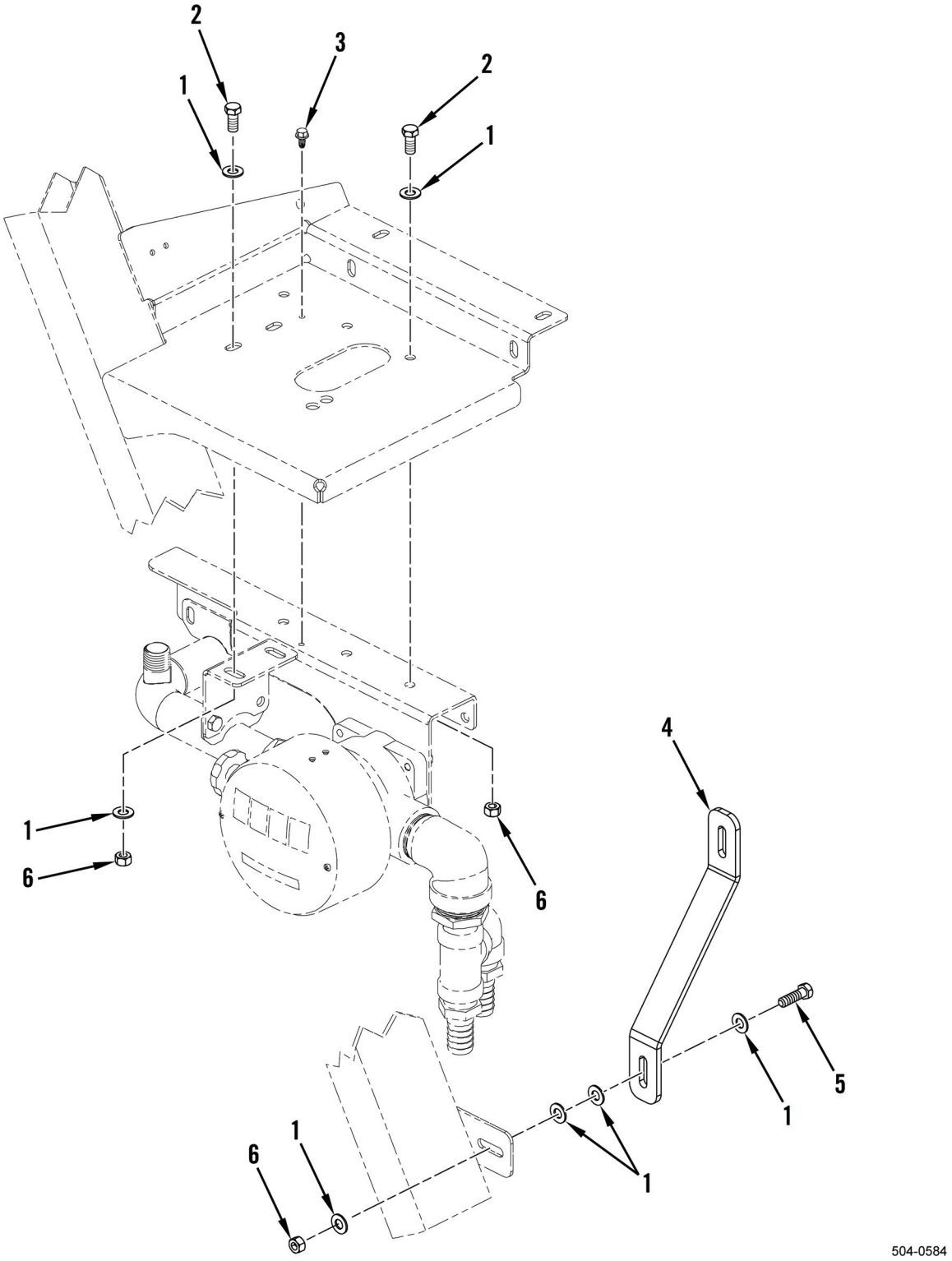


Figure 9. Flow Meter (Sheet 1 of 2).

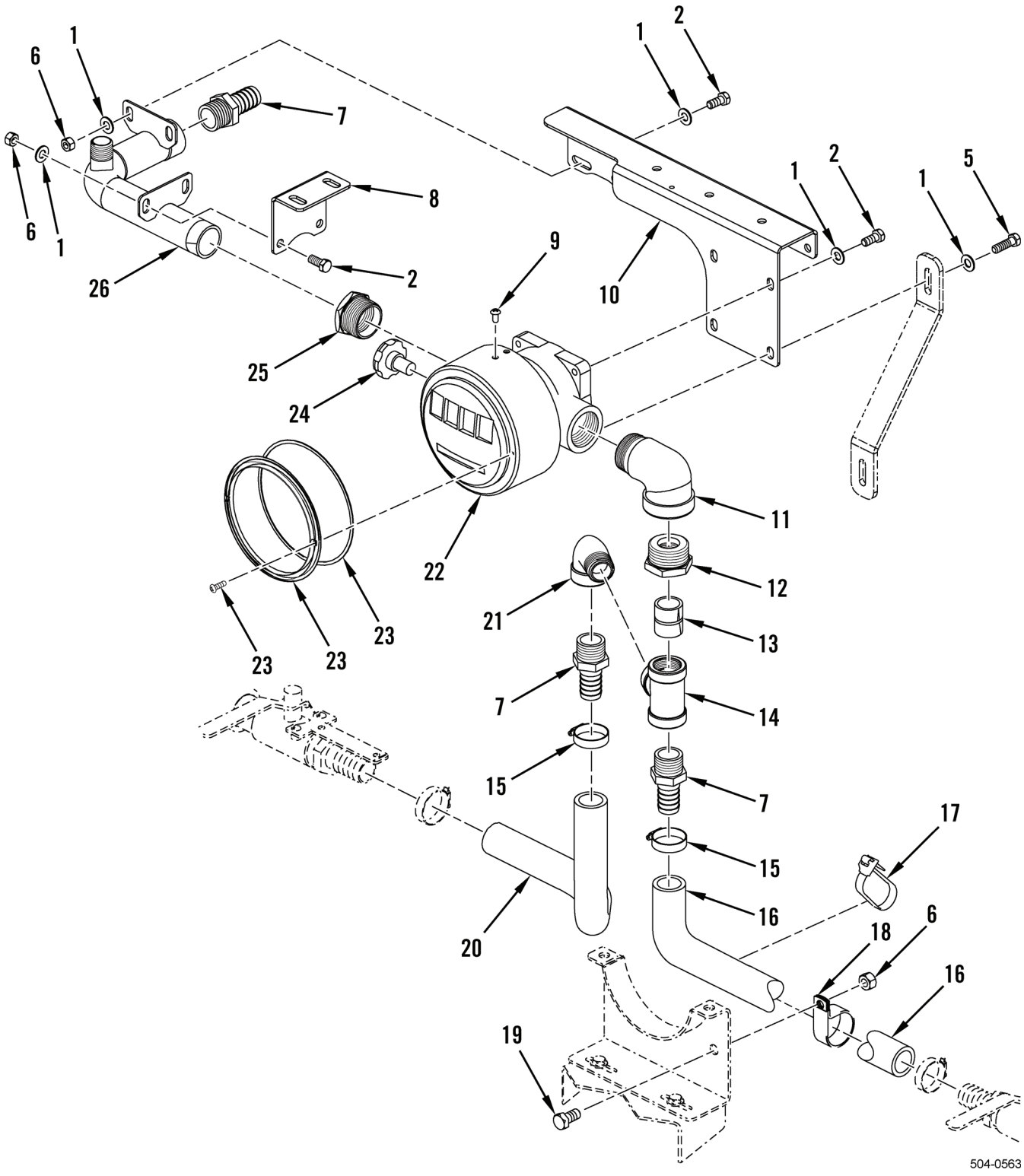


Figure 9. Flow Meter (Sheet 2 of 2).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 06	
					FIG. 9 FLOW METER	
1	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	21
2	PAFZZ	5305015247346	39428	92865A623	SCREW,CAP,HEXAGON HEAD (BOLT)	12
3	PAFZZ	5305015877081	39428	96024A410	SCREW,TAPPING	1
4	PAFZZ	5340016455883	80195	5252503	BRACKET,DOUBLE ANGLE (BRACE,METER MOUNT)	1
5	PAFZZ	5305015048942	39428	92865A626	SCREW,CAP,HEXAGON HEAD (BOLT)	2
6	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	10
7	PAFZZ	5340015842080	80195	6200971	STANDOFF,THREADED,SPACING (BARB FITTING)	3
8	PAFZZ	5340016455909	80195	5252525	BRACKET,ANGLE (BRACKET,AIR ELIMINATOR)	1
9	PAFZZ	5305015132196	39428	91772A537	SCREW,MACHINE	4
10	PAFZZ	5340016455898	80195	5252495	MOUNT,RESILIENT,GENERAL PURPOSE (METER MOUNT)	1
11	PAFZZ	4730015890721	80195	L238009	ELBOW,PIPE	1
12	PAFZZ	4730016455876	80195	6603072	BUSHING,PIPE	1
13	PAFZZ	4730009750324	39428	4830K221	NIPPLE,PIPE	1
14	PAFZZ	4730013470810	39428	4464K53	TEE,PIPE	1
15	PAFZZ	4730016326584	30119	5016	CLAMP,HOSE	2
16	MFFZZ		80195	5252556	HOSE,PREFORMED (MAKE FROM P/N B716, CUT TO LENGTH)	1
17	PAFZZ	5975016455890	53421	RT250R0X2	STRAP,TIEDOWN,ELECTRICAL COMPONENTS	2
18	PCFZZ	5340015907525	80195	6001131	CLAMP,LOOP	2
19	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,HEXAGON HEAD (BOLT)	2
20	MFFZZ		80195	5252557	HOSE,PREFORMED (MAKE FROM P/N B716, CUT TO LENGTH)	1
21	PAFZZ	4730012821685	39428	4464K41	ELBOW,PIPE	1
22	PAFZZ	6680016455697	61178	TN860AN1CAB2GAC	METER,FUEL	1
23	PAFZZ	5340016467059	61178	PL5250	.LEXAN COVER ASSEMBLY (INCLUDES SEAL AND SCREWS)	1
24	PAFZZ	5355016455913	61178	800G8870	.RESET KNOB	1
25	PAFZZ	4730016455844	80195	6201139	BUSHING,PIPE	1
26	PAFZZ	4710016455842	80195	5252597	PIPE, METALLIC	1
					END OF FIGURE	

FIELD MAINTENANCE

AIR ELIMINATOR

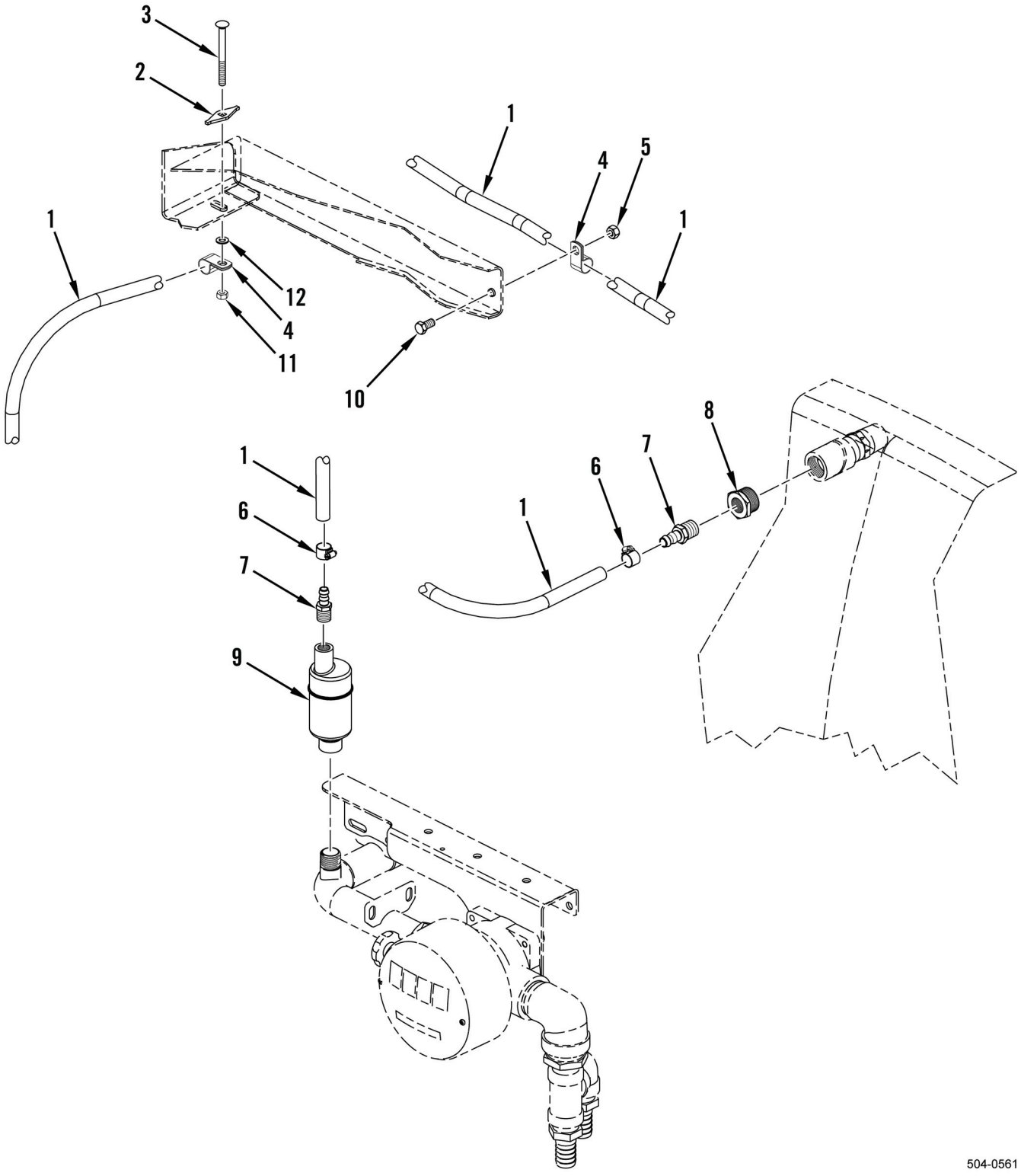


Figure 10. Air Eliminator.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 07	
					FIG. 10 AIR ELIMINATOR	
1	MFFZZ		80195	5252552	HOSE,NONMETALLIC (MAKE FROM P/N 7212-501BL, CUT TO LENGTH)	1
2	PAFZZ	5340016456731	4HEJ2	2012262999	PLATE,MOUNTING (ANCHOR,GRIP STRUT)	6
3	PAFZZ	5306016325106	80195	0126672-CR	BOLT,MACHINE	6
4	PAFZZ	5340016455894	75272	COV-1313Z1	CLAMP,LOOP,RUBBER COATED	2
5	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	1
6	PAFZZ	4730011223338	11083	5D1026	CLAMP,HOSE	2
7	PAFZZ	4730016455861	80195	6201112	ADAPTER,STRAIGHT,HOSE (HOSE FITTING,BARB)	2
8	PAFZZ	4730016455839	80195	6201108	BUSHING,PIPE	1
9	PAFZZ	4810016455769	03933	D505022	AIR ELIMINATOR,FUEL	1
10	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,HEXAGON HEAD (BOLT)	1
11	PAFZZ	5310016029922	39428	95065A160	NUT,SELF-LOCKING,HEXAGON	6
12	PAFZZ	5310015913820	80195	0446363	WASHER,FLAT	6
					END OF FIGURE	

FIELD MAINTENANCE

FILTER/SEPARATOR ASSEMBLY

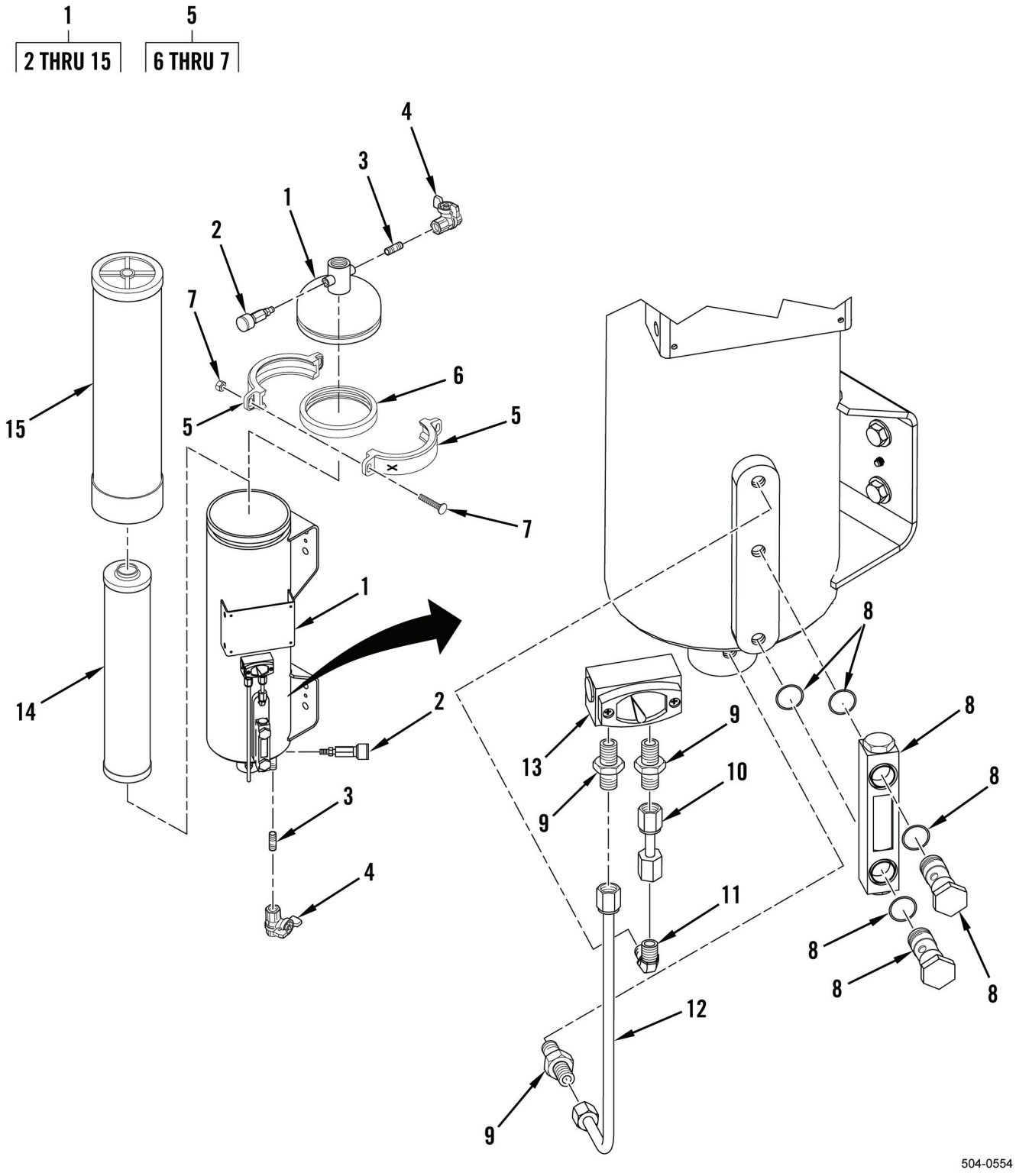


Figure 11. Filter/Separator Assembly (Sheet 1 of 3).

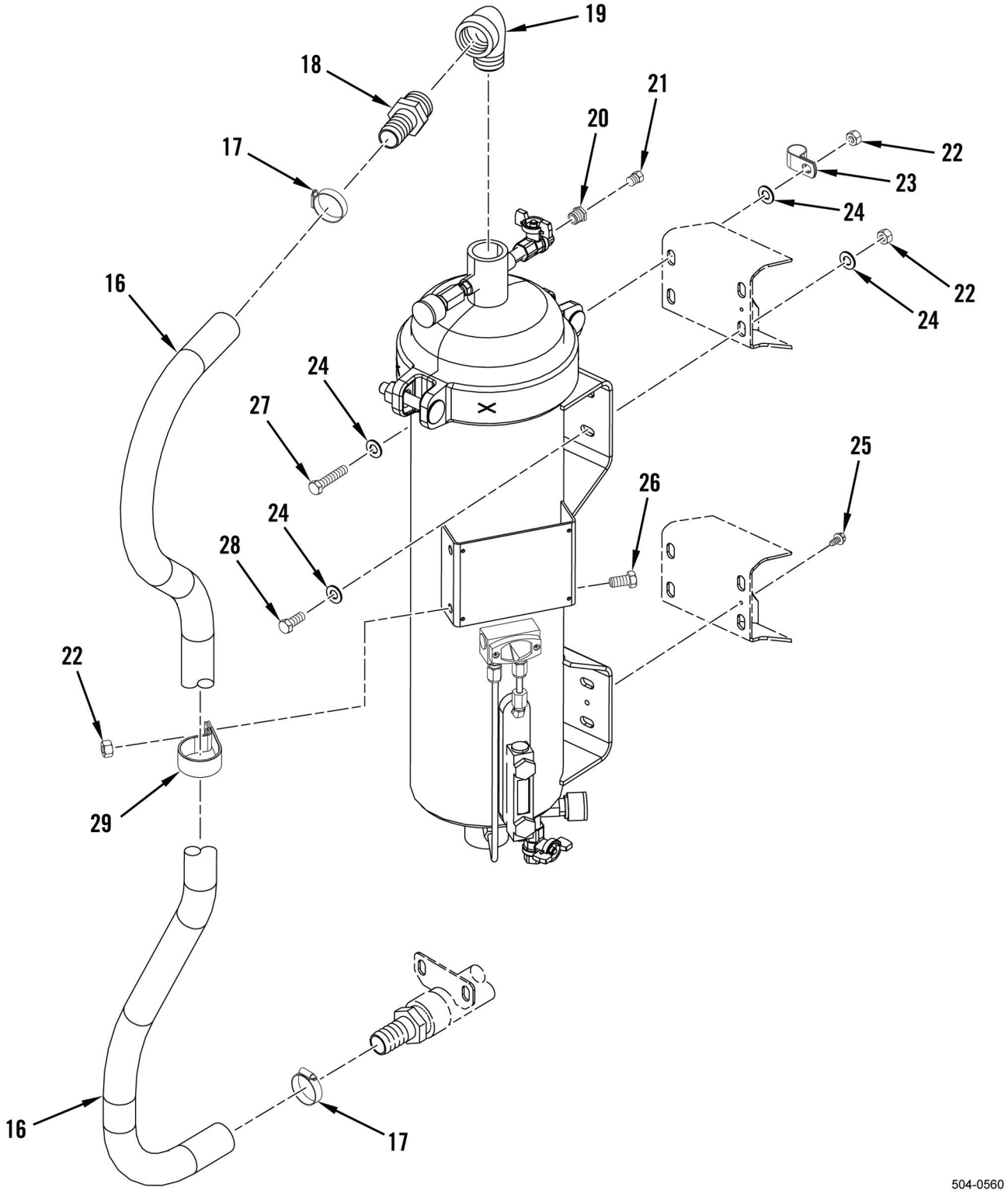


Figure 11. Filter/Separator Assembly (Sheet 2 of 3).

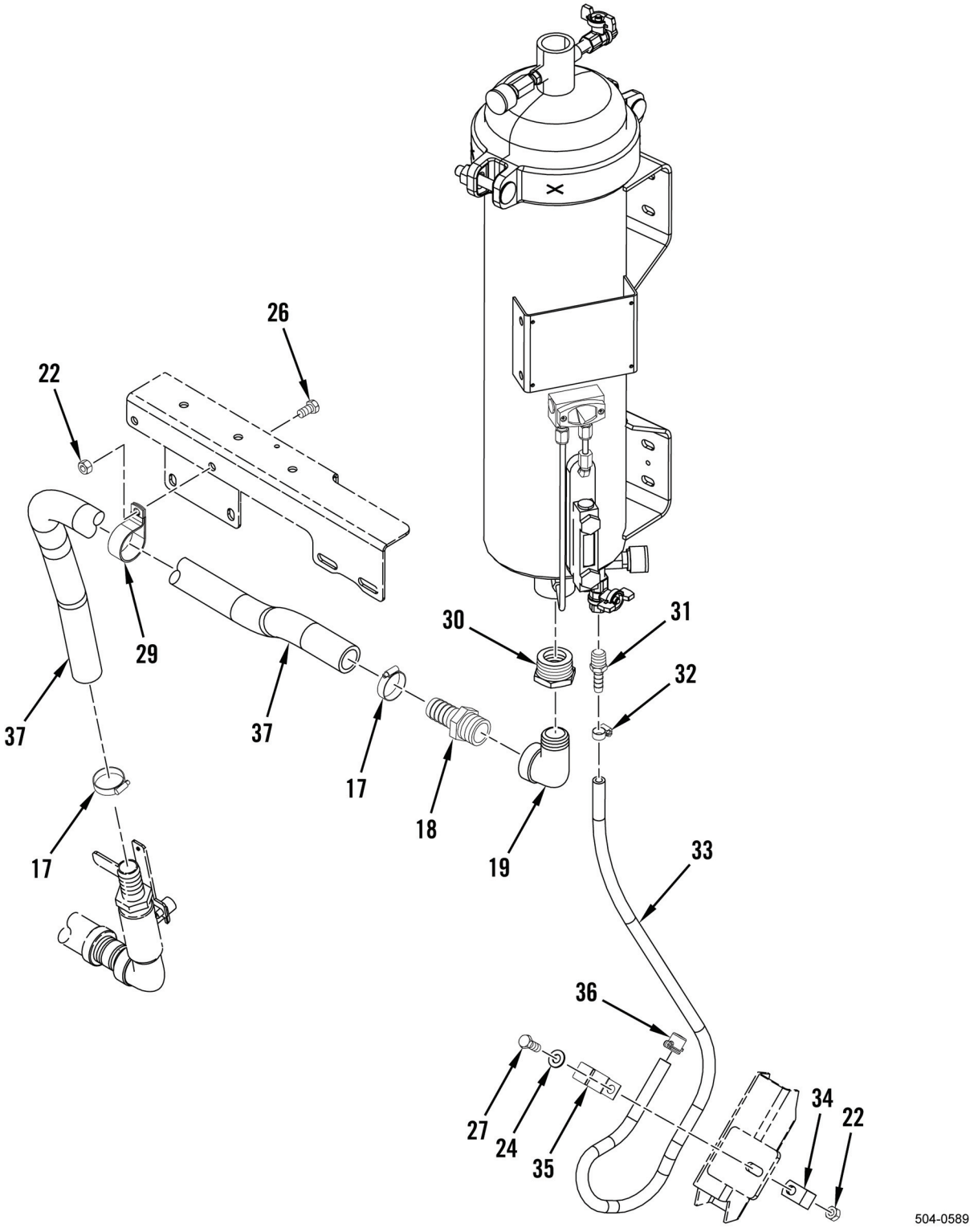


Figure 11. Filter/Separator Assembly (Sheet 3 of 3).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 08	
					FIG. 11 FILTER/SEPARATOR ASSEMBLY	
1	PAFFF	4330016455837	80195	6604134	FILTER,FLUID ELEMENT (SEPARATOR,FUEL)	1
2	PAFZZ	6695002364339	32218	GTP144	.PROBE,TEST SAMPLING	2
3	PAFZZ	4730016456309	13573	LA06	.NIPPLE,TUBE	2
4	PAFZZ	4820016456746	13573	554X509	.VALVE,BALL (V15 AND V16)	2
5	PAFFF	5342016456729	13573	900268	.CPLG,VIC-STYLE (HEAD CLAMP)	1
6	PCFZZ	5330016456730	13573	G-2121	..GASKET (SEAL)	1
7	PAFZZ	5306016456741	13573	900510	..BOLT,MACHINE	2
8	PAFZZ	6680016456982	13573	731Y500	.FLOAT,SIGHT INDICATOR (SIGHT GAUGE, INCLUDES BOLTS AND O-RINGS)	1
9	PAFZZ	4730010576866	30780	4-4FTXS	.ADAPTER,STRAIGHT,PIPE	3
10	PAFZZ	4710016457572	13573	900387	.TUBING,NONMETALLIC (LOW)	1
11	PAFZZ	4730012242999	30780	4-4DTX-S	.ELBOW,TUBE TO BOSS (ADAPTER)	1
12	PAFZZ	4710016457574	13573	900386	.TUBING,NONMETALLIC	1
13	PAFZZ	6685016212967	13573	703X500	.GAGE,PRESSURE,RECORDING (DIFFERENTIAL PRESSURE GAUGE)	1
14	PAFZZ	4330014777985	13573	I-420MMA	.FILTER ELEMENT,FLUID COALESCER	1
15	PAFZZ	4330001120256	19207	13216E2773	.FILTER ELEMENT,FLUID CANISTER	1
16	MFFZZ		80195	5252550	HOSE,PREFORMED (MAKE FROM P/N B716, CUT TO LENGTH)	1
17	PAFZZ	4730016326584	30119	5016	CLAMP,HOSE	4
18	PAFZZ	5340015842080	80195	6200971	STANDOFF,THREADED,SPACING (BARB, HOSE)	2
19	PAFZZ	4730012821685	39428	4464K41	ELBOW,PIPE	2
20	PAFZZ	4730016457576	80195	0144035	BUSHING,PIPE	1
21	PAFZZ	4310012600619	31408	ASP-1BV	BREATHER	1
22	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	13
23	PAFZZ	5340016455894	75272	COV-1313Z1	CLAMP,LOOP,RUBBER COATED	2
24	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	17
25	PAFZZ	5305015877081	39428	96024A410	SCREW,TAPPING	1
26	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,SOCKET HEAD (HEXAGON, BOLT)	4
27	PAFZZ	5305015955944	80195	0180122	SCREW,CAP,HEXAGON HEAD (BOLT)	3
28	PAFZZ	5305015247346	39428	92865A623	SCREW,CAP,HEXAGON HEAD (BOLT)	6
29	PCFZZ	5340015907525	80195	6001131	CLAMP,LOOP	4
30	PAFZZ	4730016452976	80195	6201109	REDUCER,PIPE (BUSHING,PIPE)	1
31	PAFZZ	4730015520695	39428	5346K16	ADAPTER,STRAIGHT,PIPE (BARB, HOSE)	1
32	PAFZZ	4730008716729	89346	W-10869-14	CLAMP,HOSE	1
33	MFFZZ		80195	5252549	HOSE,PREFORMED (MAKE FROM P/N H-176, CUT TO LENGTH)	1
34	PAFZZ	5340004044169	75272	COV-0913Z1	CLAMP,LOOP	1
35	PAFZZ	5340016458534	75272	CJV-1013Z1	CLIP,SPRING TENSION	1
36	PAFZZ	5340016458531	3M7L3	VTC-562-8	CAP-PLUG,PROTECTIVE,DUST AND MOISTURE SEAL	1
37	MFFZZ		80195	5252558	HOSE,PREFORMED (MAKE FROM P/N B716, CUT TO LENGTH)	1
					END OF FIGURE	

FIELD MAINTENANCE

EMI CONTROL BOX ASSEMBLY

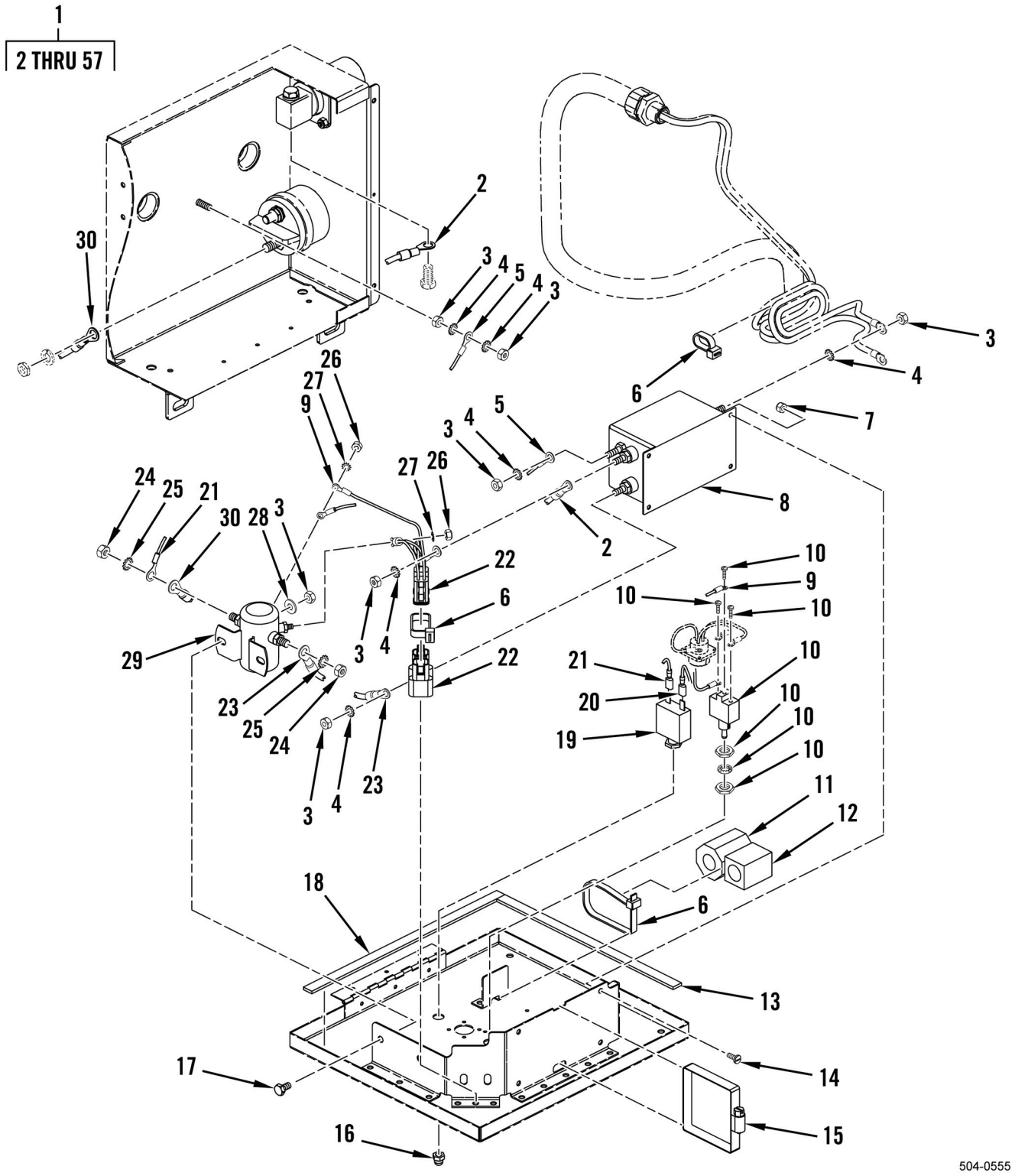


Figure 12. EMI Control Box Assembly (Sheet 1 of 3).

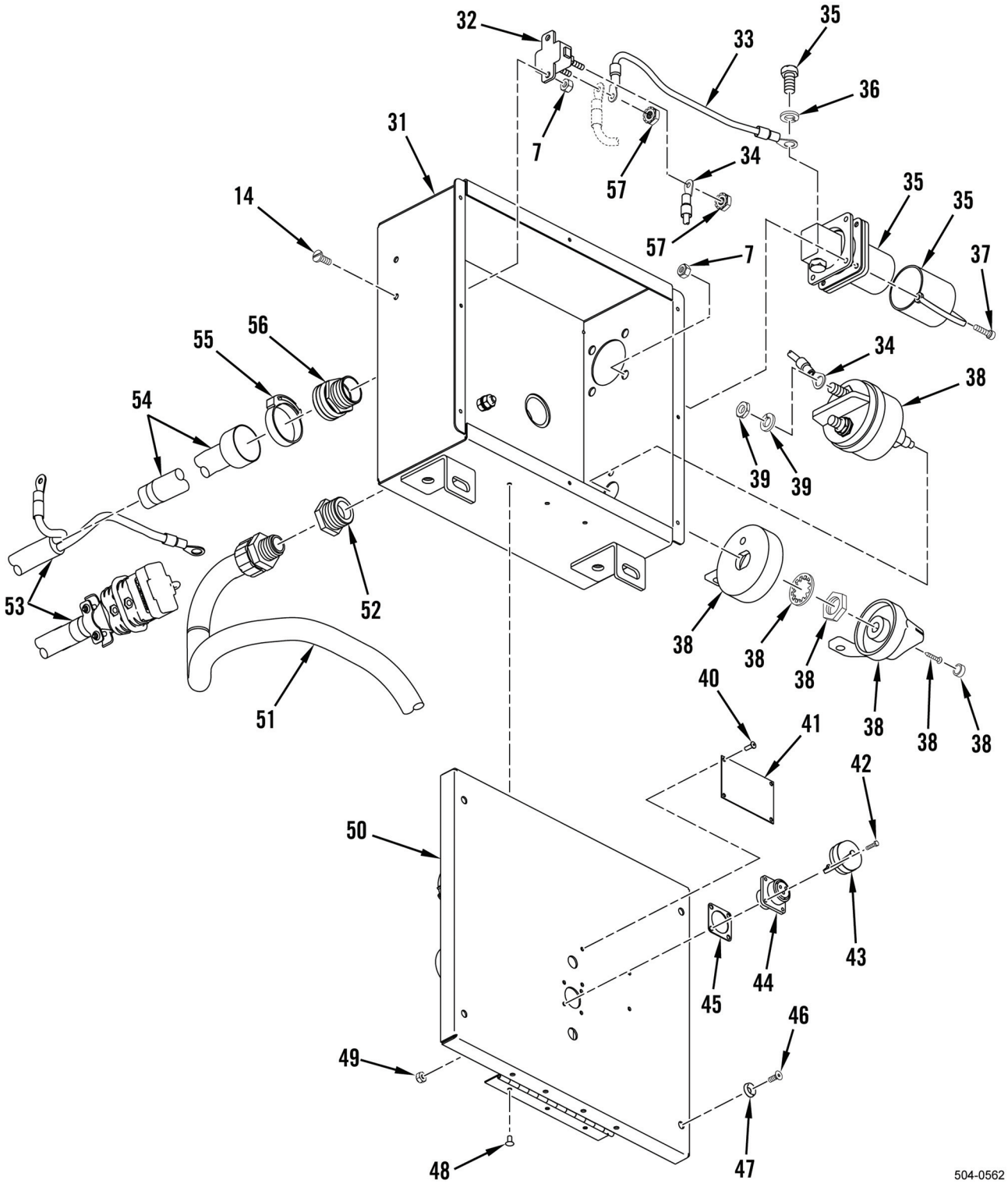


Figure 12. EMI Control Box Assembly (Sheet 2 of 3).

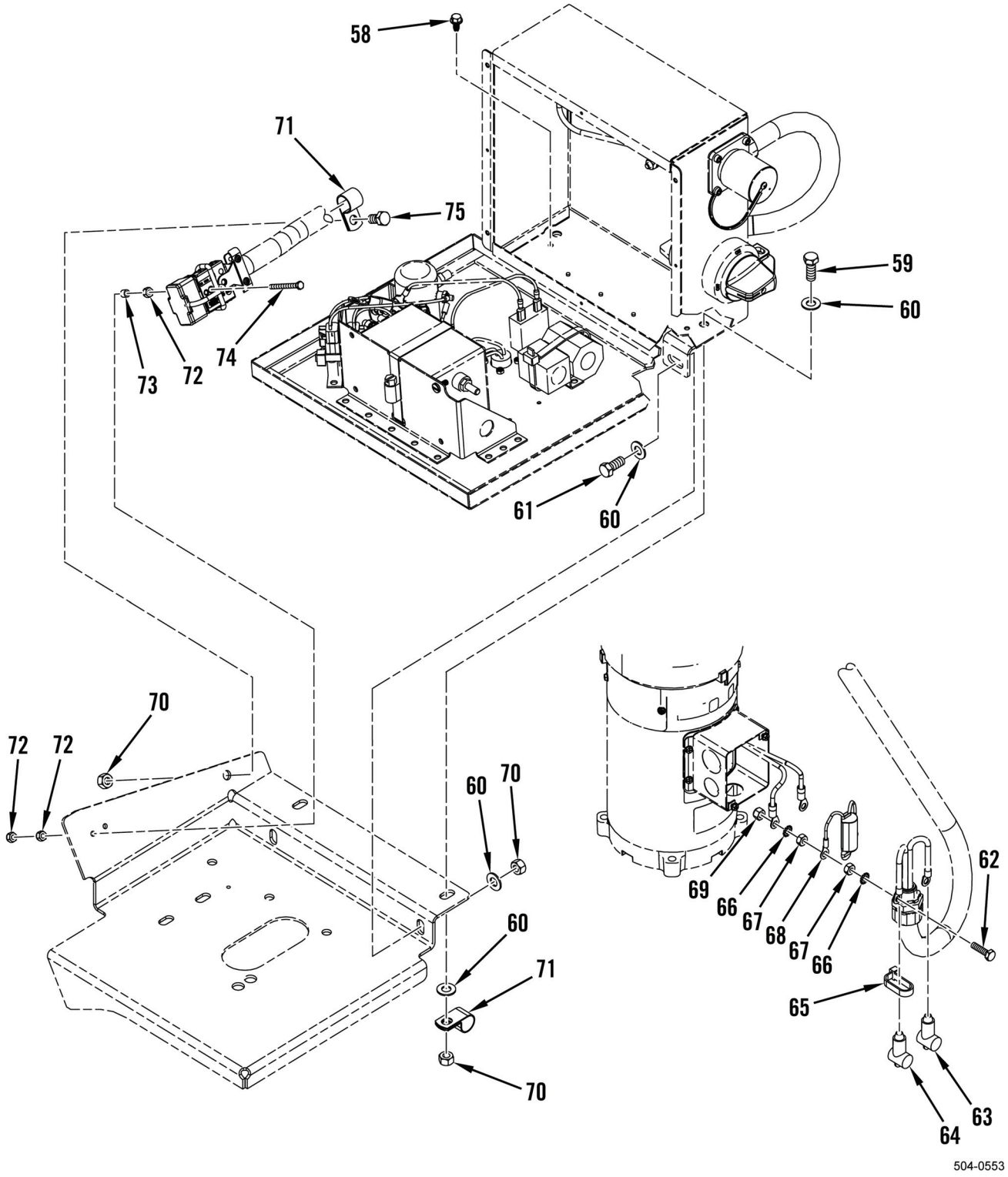


Figure 12. EMI Control Box Assembly (Sheet 3 of 3).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 09	
					FIG. 12 EMI CONTROL BOX ASSEMBLY	
1	PBFFF	5999016463356	80195	5252515	EMI CONTROL BOX ASSEMBLY	1
2	PAFZZ	6150016463542	80195	5252531	.LEAD,ELECTRICAL (JUMPER WIRE)	1
3	PAFZZ	5310000881251	81349	M45913/1-4CG5C	.NUT,SELF-LOCKING,HEXAGON	9
4	PAFZZ	5310013578845	39428	91114A029	.WASHER,LOCK	7
5	PAFZZ	6150016463528	80195	5252536	.LEAD,ELECTRICAL (JUMPER WIRE)	1
6	PAFZZ	5975121754534	D8527	T50L0C2	.TIE,CABLE	2
7	PAFZZ	5310014634929	39428	91831A011	.NUT,SELF-LOCKING,HEXAGON	10
8	PAFZZ	5805016023816	64135	DC60F	.CHANNEL FILTER	1
9	PAFZZ	6150016463517	80195	5252535	.LEAD,ELECTRICAL (JUMPER WIRE)	1
10	PAFZZ	5930006814727	96906	MS24523-21	.SWITCH,TOGGLE (INCLUDES SCREWS, NUTS, AND LOCKWASHER)	1
11	PAFZZ	2840015911503	34899	0444176451	.FERRITE CORES	1
12	PAFZZ	5998015396228	34899	0431173551	.FERRITE CORES	1
13	PAFZZ	5330016463792	80195	5252640	.GASKET (COVER,EMI BOX)	2
14	PAFZZ	5305016463788	80195	0436732	.SCREW,CAP,SOCKET HEAD	6
15	PAFZZ	4730002745828	58536	A-A-52506-F-64	.CLAMP,HOSE	1
16	PAFZZ	6220014605504	14550	86-00066-105	.LIGHT ASSEMBLY,INDICATOR (SEAL NUT)	1
17	PAFZZ	5306015333783	39428	92865A537	.BOLT,MACHINE	2
18	PAFZZ	5330016463789	80195	5252639	.GASKET (COVER,EMI BOX)	2
19	PAFZZ	5925001029390	99193	210-521-9001	.CIRCUIT BREAKER (2 AMP)	1
20	PAFZZ	6150016463497	80195	5252534	.LEAD,ELECTRICAL (JUMPER WIRE)	1
21	PAFZZ	6150016463435	80195	5252533	.LEAD,ELECTRICAL (JUMPER WIRE)	1
22	PAFZZ	5980016463339	80195	5252537	.LIGHT EMITTING DIODE (DIODE ASSEMBLY,EMI)	1
23	PAFZZ	6150016463321	80195	5252532	.LEAD,ELECTRICAL (JUMPER WIRE)	1
24	PAFZZ	5310015344600	39428	90640A145	.NUT,SELF-LOCKING,HEXAGON	2
25	PAFZZ	5310016463810	80195	0138485	.WASHER,LOCK	2
26	PAFZZ	5310015273369	2V507	90631A411	.NUT,SELF-LOCK,HEXAGON	2
27	PAFZZ	5310015606893	39428	91114A011	.WASHER,LOCK	2
28	PAFZZ	5310015316758	39428	90108A413	.WASHER,FLAT	2
29	PAFZZ	2920015904085	SH703	SAS-4410	.RELAY-SOLENOID,ENGINE	1
30	PAFZZ	6150016466473	80195	5252574	.ROPE,WIRE (JUMPER WIRE)	1
31	XBFZZ		80195	5252516	.BODY WMT,EMI BOX	1
32	PAFZZ	5925015890212	13445	30407-50	.CIRCUIT BREAKER	1
33	PAFZZ	6150016466419	80195	5252529	.ROPE,WIRE (JUMPER WIRE)	1
34	PAFZZ	6150016456412	80195	5252530	.ROPE,WIRE (JUMPER WIRE)	1
35	PAFFF	5935010979974	19207	11674728	.CONNECTOR,RECEPTACLE,ELECTRICAL (NATO SLAVE CONNECTOR, INCLUDES CAP, SCREWS, AND LOCKWASHERS)	1
36	PAFZZ	5310009847042	80205	MS35338-141	..WASHER,LOCK	2
37	PAFZZ	5305016148937	8R639	92196A245	.SCREW,CAP,SOCKET HEAD	4
38	PAFFF	4830016466462	13445	75920	.SWITCH, ROTARY (DISCONNECT SWITCH, INCLUDES NUTS, INTERNAL TOOTH WASHER, NUT, CAP, KNOB, AND BEZEL)	1
39	PAFZZ	5310009847042	80205	MS35338-141	..WASHER,LOCK	2
40	PAFZZ	5320015846190	39428	97525A615	.RIVET,BLIND (1/8 IN., 0.063 TO 0.125 IN. THICKNESS)	4
41	PAFZZ		80195	5252541	.MARKER,IDENTIFICATION (DATA PLATE,PUMP CONTROL)	1
42	PAFZZ	5305014552678	39428	92314A110	.SCREW,CAP,SOCKET HEAD	4

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
43	PAFZZ	5935011816651	96906	MS25043-14DA	.COVER,ELECTRICAL CONNECTOR	1
44	PAFZZ		80195	5252538	.CONNECTOR,RECEPTACLE,ELECTRICAL (RECEPTACLE ASSEMBLY)	1
45	PAFZZ	5330006414338	58536	AA52481-4	.GASKET,RECEPTACLE,ELECTRICAL	1
46	PAFZZ	5305014439078	39428	92210A194	.SCREW,CAP,SOCKET HEAD	4
47	PAFZZ	5310015722443	3A054	98466A009	.WASHER,RECESSED	4
48	PAFZZ	5320015886008	0Y3H3	12759-01020	.RIVET,SOLID (5/32 IN., 0.063 TO 0.125 IN. THICKNESS)	3
49	PAFZZ		80195	6002117	.NUT,SELF-LOCK, HEXAGON	4
50	XBFZZ		80195	5252519	.COVER WMT,EMI BOX	1
51	PAFZZ	6150016466378	80195	5252631	.CABLE ASSEMBLY-MOTOR	1
52	PAFZZ		80195	0144042	.BUSHING,PIPE	1
53	PAFZZ	6150016466296	80195	5252507	.CABLE ASSEMBLY,SPECIAL PURPOSE,ELECTRICAL (SLAVE)	1
54	PAFZZ		80195	5252638	.SHIELD,ELECTRONIC COMPONENTS (SHIELD,BRAID)	1
55	PAFZZ		80195	6002128	.STRAP,TIEDOWN,ELECTRICAL COMPONENTS (CABLE TIE)	1
56	PAFZZ	5975012171497	03743	CG-7575	.BOX CONNECTOR,ELECTRICAL (BUSHING)	1
57	PAFZZ	5310015261750	2V507	90675A195	.NUT,PLAIN,ASSEMBLED WASHER (LOCKNUT)	2
58	PAFZZ	5305015877081	39428	96024A410	SCREW,TAPPING	1
59	PAFZZ	5305015955944	80195	0180122	SCREW,CAP,HEXAGON HEAD (BOLT)	2
60	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	8
61	PAFZZ	5305015247346	39428	92865A623	SCREW,CAP,HEXAGON,HEAD (BOLT)	2
62	PAFZZ	5305014519220	39428	92865A542	SCREW,CAP,HEXAGON,HEAD (BOLT)	2
63	PAFZZ	5940015723425	7Z043	214N1V14	BOOT,CABLE BLACK	1
64	PAFZZ	5940015723058	7Z043	214N1V02	BOOT, CABLE RED	1
65	PAFZZ	5975121754534	D8527	T50L0C2	TIE,CABLE	2
66	PAFZZ	5310013578845	39428	91114A029	WASHER,LOCK	4
67	PAFZZ	5310007616882	96906	MS51967-2	NUT,PLAIN,HEXAGON	4
68	PAFZZ	5910016466457	80195	5252632	CAPACITOR ASSEMBLY	1
69	PAFZZ	5310015045702	39428	90715A125	NUT,SELF-LOCKING,HEXAGON	2
70	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	5
71	PAFZZ	5340016455894	75272	COV-1313Z1	CLAMP,LOOP,RUBBER COATED	2
72	PAFZZ	5310014634929	39428	91831A011	NUT,SELF-LOCKING,HEXAGON	6
73	PAFZZ		80195	6002126	SPACER, RING	2
74	PAFZZ		80195	6002226	SCREW,MACHINE,HEXAGON HEAD (BOLT)	2
75	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,HEXAGON HEAD (BOLT)	1

END OF FIGURE

FIELD MAINTENANCE

ISO RACK PLACARDS

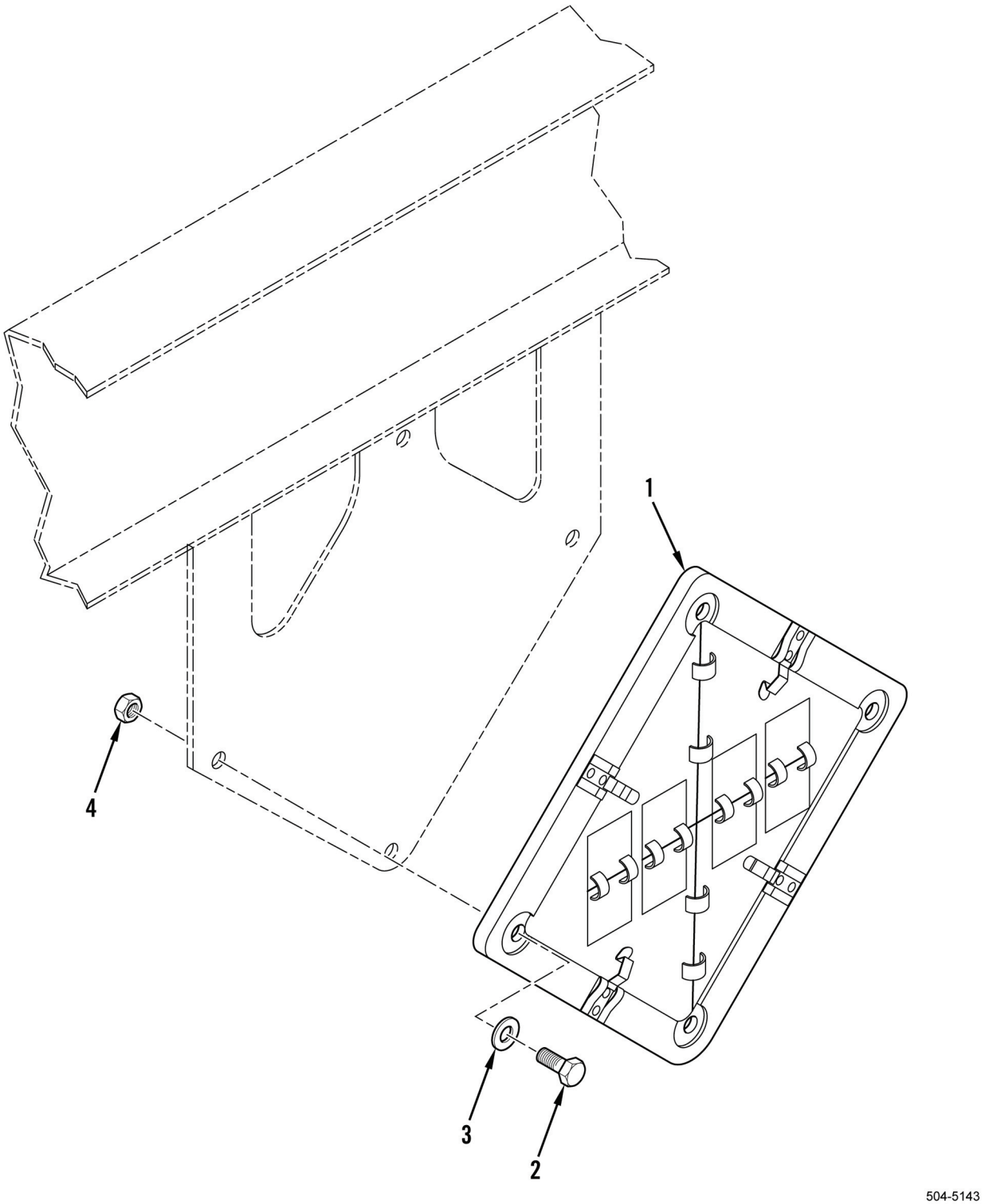


Figure 13. ISO Rack Placards.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 10	
					FIG. 13 ISO RACK PLACARDS	
1	PAFZZ	9905013795693	19207	12380149	PLATE,INSTRUCTION	3
2	PAFZZ	5305015779592	07BY4	92196A242	SCREW,CAP,SOCKET HEAD (BOLT)	12
3	PAFZZ	5310015475839	39428	90313A400	WASHER,FLAT	12
4	PAFZZ	5310014634929	39428	91831A011	NUT,SELF-LOCKING,HEXAGON.....	12
					END OF FIGURE	

FIELD MAINTENANCE

GROUND ROD AND TANK GROUND STRAP

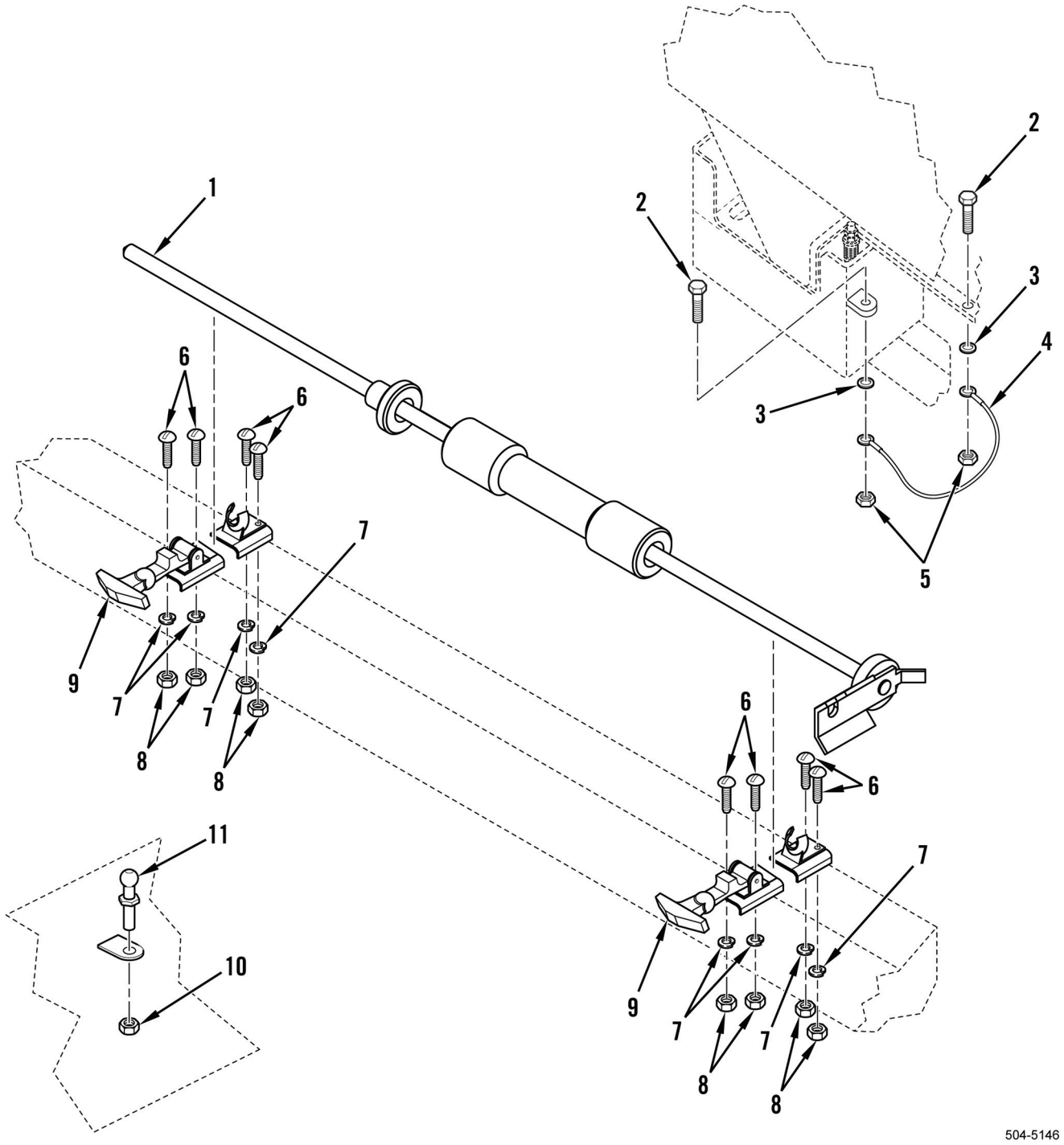


Figure 14. Ground Rod and Tank Ground Strap.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 11	
					FIG. 14 GROUND ROD AND TANK GROUND STRAP	
1	PAFZZ	5975010505707	19207	13219E0462	ROD,GROUND	1
2	PAFZZ	5305015955944	80195	0180122	SCREW,CAP,HEXAGON HEAD (BOLT)	2
3	PAFZZ	5310013578847	39428	91114A031	WASHER,LOCK	2
4	PAFZZ	6150015929820	80195	6703627	CABLE ASSEMBLY, SPECIAL PURPOSE (GROUND)	1
5	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	2
6	PAFZZ	5305011942588	39428	90283A829	SCREW,MACHINE	8
7	PAFZZ	5310010836490	80195	0120217	WASHER,LOCK	8
8	PAFZZ	5310010829526	80195	0120614	NUT,PLAIN,HEXAGON	8
9	PAFZZ	5340014241221	94222	37-20-086-10	CATCH,CLAMPING	2
10	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	2
11	PAFZZ	5307016458465	80195	6702347	STUD,BALL	2
					END OF FIGURE	

FIELD MAINTENANCE

FIRE EXTINGUISHER AND DRIP PAN BRACKETS

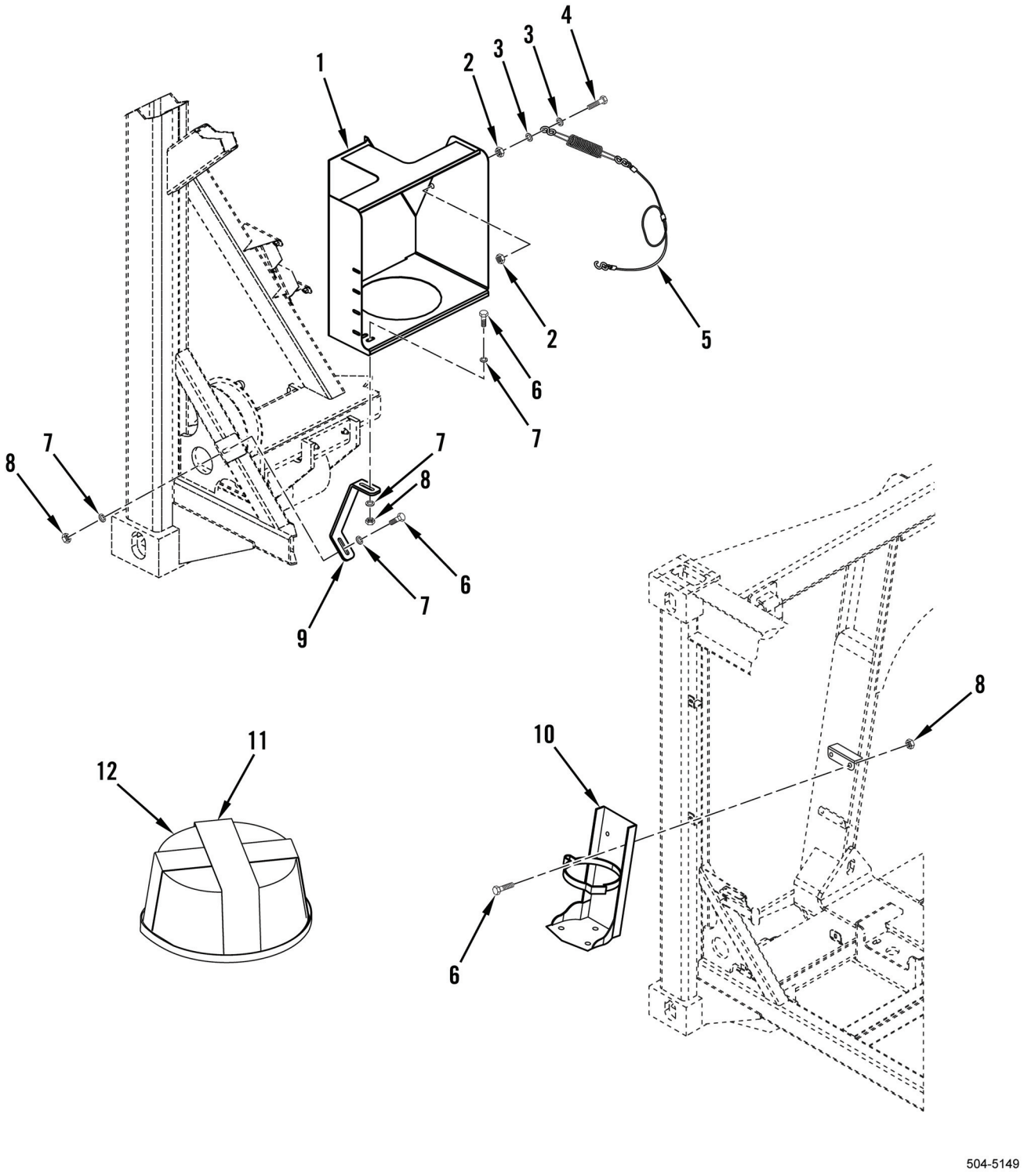


Figure 15. Fire Extinguisher and Drip Pan Brackets.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 12	
					FIG. 15 FIRE EXTINGUISHER AND DRIP PAN BRACKETS	
1	PAFZZ	5340015967811	80195	5251707	BRACKET,MOUNTING	1
2	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	2
3	PAFZZ	5310015316758	39428	90108A413	WASHER,FLAT	2
4	PAFZZ	5305014519220	39428	92865A542	SCREW, CAP, HEXAGON HEAD	1
5	PAFZZ	4010015886720	80195	5251714	WIRE ROPE ASSEMBLY	1
6	PAFZZ	5305015955944	80195	0180122	SCREW,CAP,HEXAGON HEAD (BOLT)	7
7	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	10
8	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	7
9	PAFZZ	5340015967737	80195	5251712	BRACKET,DOUBLE ANGLE (DRIP PAN BRACKET)	1
10	PAFZZ	4210011476483	03670	30937	BRACKET,FIRE EXTINGUISHER	1
11	PAFZZ	2540016457568	80195	5251704	SUPPORT,STRUCTURAL COMPONENT,VEHICULAR	4
12	PAFZZ	4940015045273	4N5U7	PB6C-10	PAN,DRIP	4
					END OF FIGURE	

FIELD MAINTENANCE

STATIC GROUND REELS

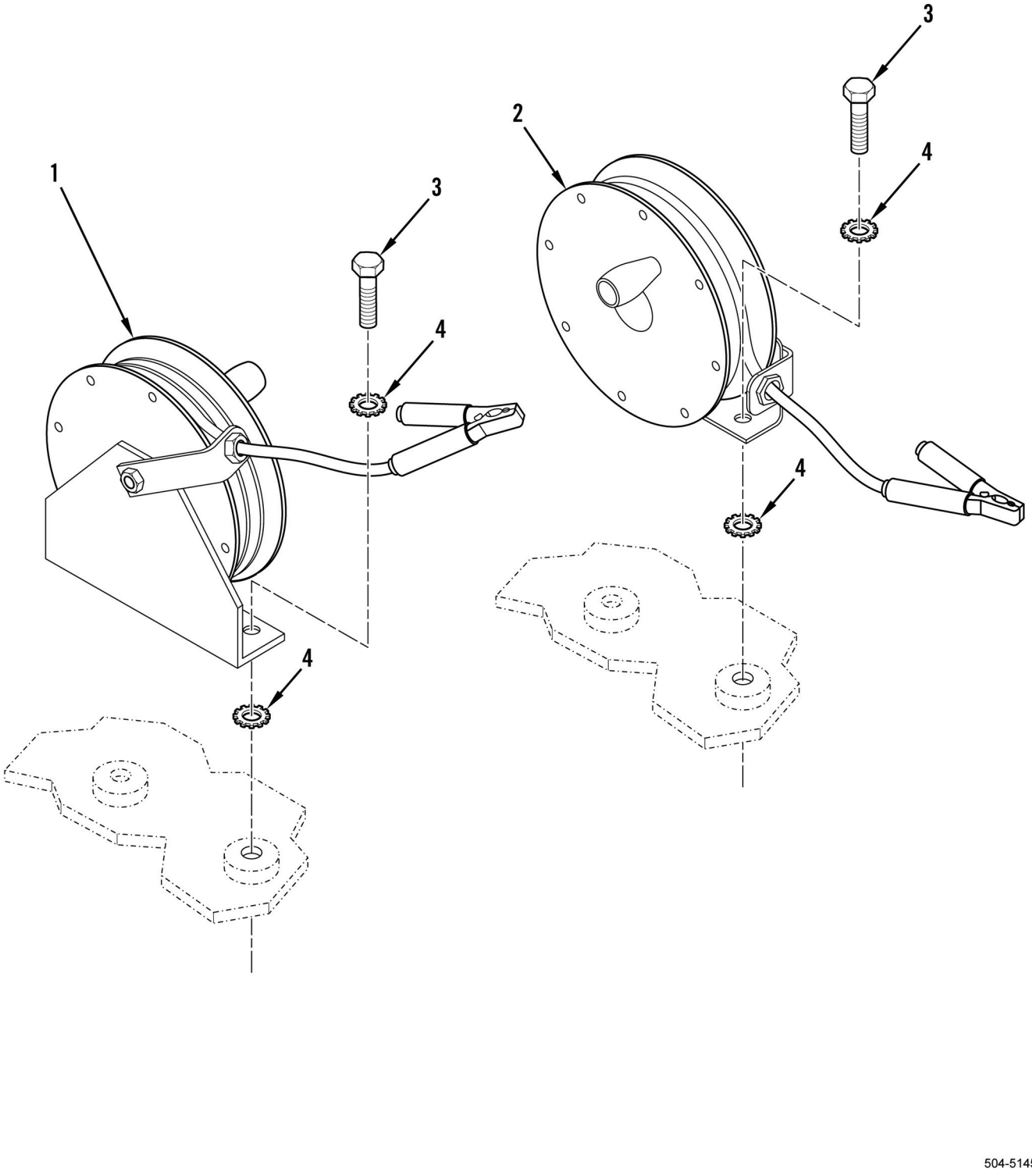


Figure 16. Static Ground Reels.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 13	
					FIG. 16 STATIC GROUND REELS	
1	PAFZZ	4930016456980	92858	MRGR75-50	REEL ASSEMBLY,STATIC DISCHARGE (LEFT)	1
2	PAFZZ	4930016456974	92858	MGR75-50	REEL ASSEMBLY,STATIC DISCHARGE (RIGHT).....	1
3	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,SOCKET HEAD (BOLT)	4
4	PAFZZ	5310013578847	39428	91114A031	WASHER,LOCK.....	8
					END OF FIGURE	

FIELD MAINTENANCE

ROLLERS

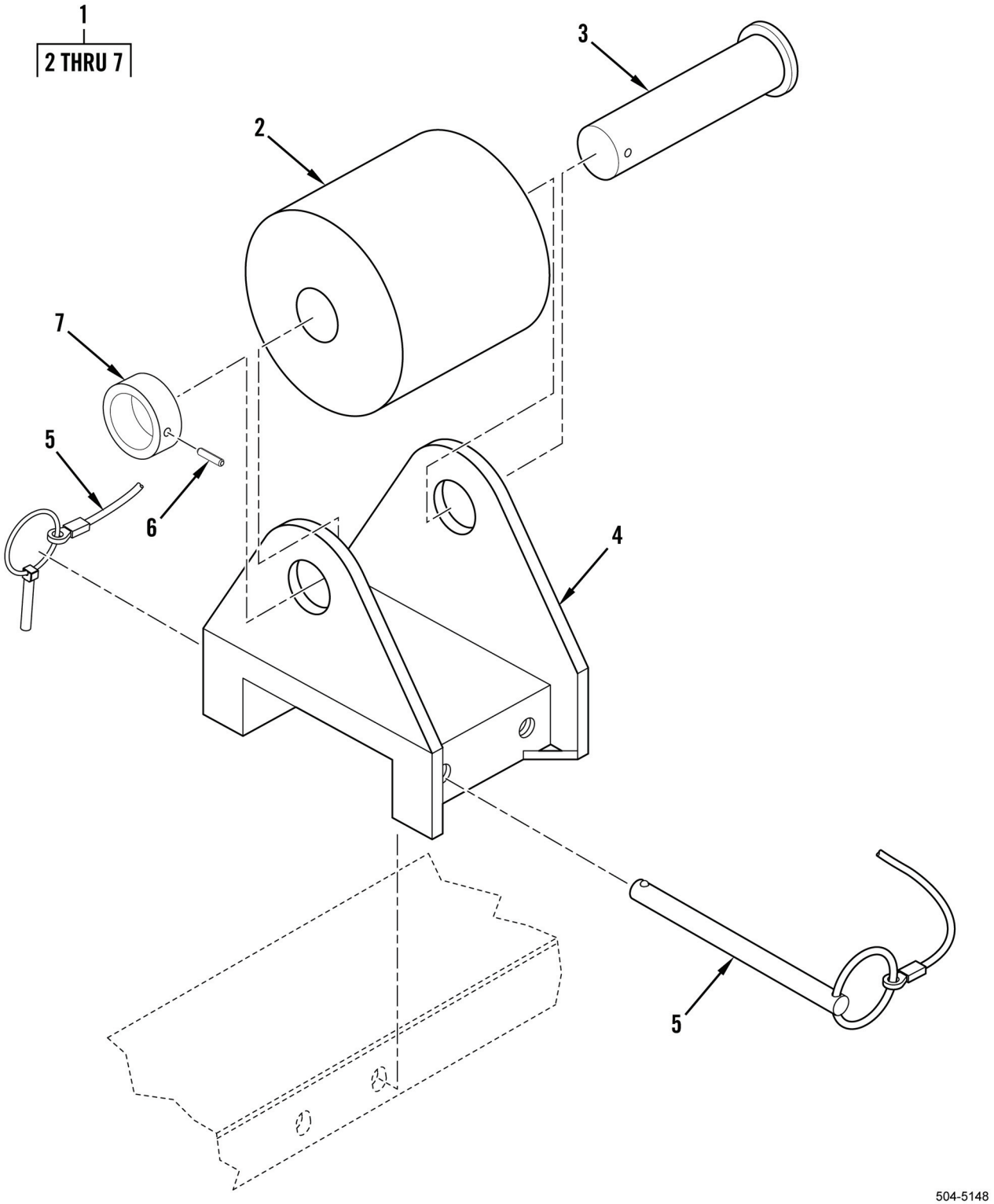


Figure 17. Rollers.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 14	
					FIG. 17 ROLLERS	
1	PAFZZ	3990015885068	80195	5250126	ROLLER,MATERIAL HANDLING	2
2	XBFZZ	3120013723618	75Q65	1726860 W	.ROLLER,LINEAR-ROTARY MOTION	1
3	XBFZZ	3040013728553	19207	12440542	.SHAFT,SHOULDERED	1
4	XBFZZ	5340013723866	75Q65	2HL806	.BRACKET SET,ANGLE	1
5	PAFZZ	5315016458491	80195	5250117	.PIN,STRAIGHT,HEADLESS (INCLUDES PINS, CABLE, AND RINGS)	4
6	XBFZZ		80195	9424876	.PIN,STRAIGHT,HEADLESS	1
7	XBFZZ	3040013727046	75Q65	2HL808	.COLLAR,SHAFT	1
					END OF FIGURE	

FIELD MAINTENANCE

ISO RACK HANDLES

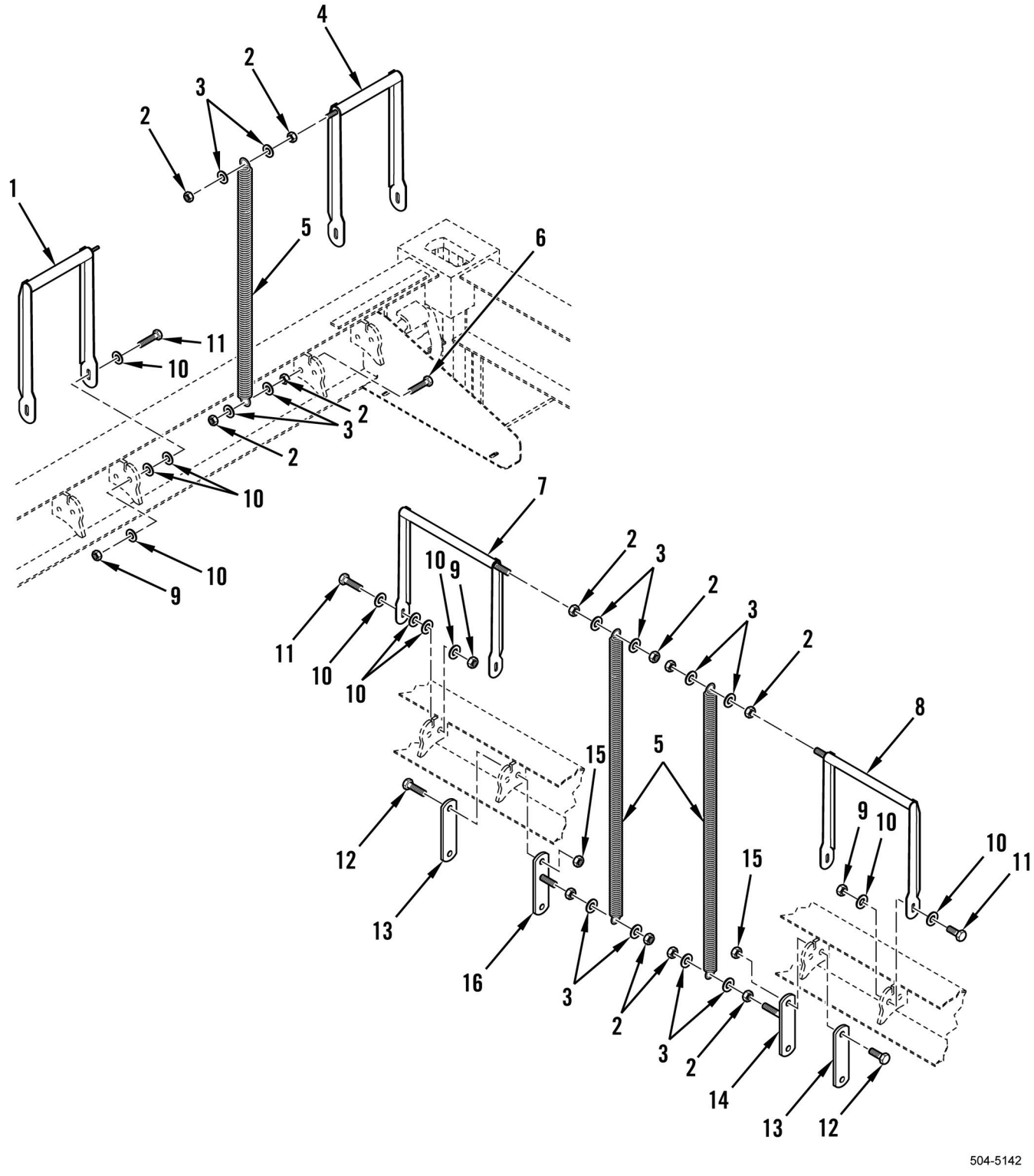


Figure 18. ISO Rack Handles.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 15	
					FIG. 18 ISO RACK HANDLES	
1	PAFZZ	5340015839423	80195	5251278	HANDLE,BAIL (FOLDING HEAD LEFT HAND)	1
2	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	16
3	PAFZZ	5310015316758	39428	90108A413	WASHER,FLAT	16
4	PAFZZ	5340015841694	80195	5251277	HANDLE,BAIL (FOLDING HEAD RIGHT HAND)	1
5	PAFZZ	5360015918646	39428	94135K44	SPRING,HELICAL,COMPRESSION	4
6	PAFZZ	5305015672367	07070	91247A552	SCREW,CAP,HEXAGON HEAD (BOLT)	4
7	PAFZZ	5340015846706	80195	5251257	HANDLE,EXTENSION (FOLDING HEAD RIGHT HAND)	1
8	PAFZZ	5340015846737	80195	5251263	HANDLE,EXTENSION (FOLDING HEAD LEFT HAND)	1
9	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	12
10	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	16
11	PAFZZ	5305015048942	39428	92865A626	SCREW,CAP,HEXAGON HEAD (BOLT)	8
12	PAFZZ	5305016458474	80195	0180079-CR	SCREW,CAP,HEXAGON HEAD (BOLT)	4
13	PAFZZ	5365015959028	80195	5251259	SPACER,PLATE	2
14	PAFZZ	5365015959103	80195	5251264	SPACER,PLATE (RIGHT HAND)	1
15	PAFZZ	5310016029922	39428	95065A160	NUT,SELF-LOCKING,HEXAGON	4
16	PAFZZ	5365015959020	80195	5251265	SPACER,PLATE (LEFT HAND)	1
					END OF FIGURE	

FIELD MAINTENANCE

REAR HEAD TANK GAUGE

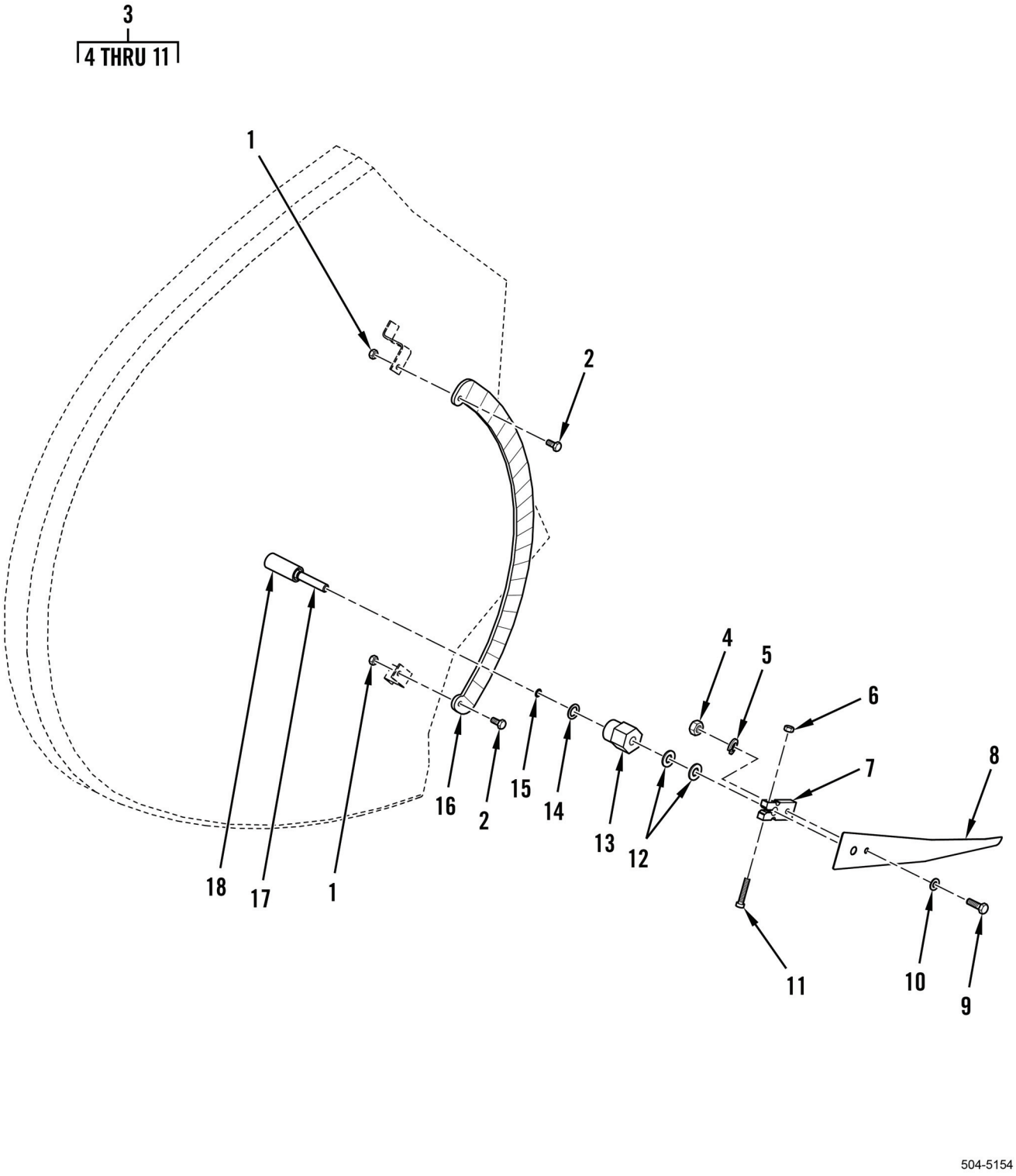


Figure 19. Rear Head Tank Gauge.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 16	
					FIG. 19 REAR HEAD TANK GAUGE	
1	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	2
2	PAFZZ	5306015528240	39428	92865A938	BOLT,MACHINE	2
3	PAFZZ	5355015846482	80195	5251268	POINTER, DIAL (ASSEMBLY, TANK GAUGE POINTER)	1
4	PAFZZ	5310016327837	80195	0120376-CR	.NUT,HEXAGON,LOCK	2
5	PAFZZ	5310004079566	19207	7410218	.WASHER,LOCK	1
6	PAFZZ	5310016029922	39428	95065A160	.NUT,SELF-LOCKING,HEXAGON	1
7	PAFZZ	5340015887698	80195	5251977	.CLAMP,BLOCK (POINTER)	1
8	PAFZZ	5355015956036	80195	5250424	.POINTER,DIAL	1
9	PAFZZ	5305016458474	80195	0180079-CR	.SCREW,CAP,HEXAGON HEAD	1
10	PAFZZ	5310015913820	80195	0446363	.WASHER,FLAT	1
11	PAFZZ	5305015661317	21351	90128A587	.SCREW,CAP,SOCKET HEAD	1
12	PAFZZ	5310015886040	80195	6100440	WASHER,FLAT	2
13	PAFZZ	5340015886436	80195	5251978	CAP,PROTECTIVE,DUST	1
14	PCFZZ	5331015886531	8L582	OR-012-2885-633	O-RING (PACKING RETAINER)	1
15	PAFZZ	5330015956040	80195	5251117	GASKET	1
16	PAFZZ	6620016112038	80195	5251121	HOUSING,GAGE	1
17	PAFZZ	4820015955915	80195	5250992	STEM,FLUID,VALVE	1
18	PAFZZ	6680015846334	80195	5251107	GAGE ROD,LIQUID LEVEL	1
					END OF FIGURE	

FIELD MAINTENANCE

VENT VALVE ASSEMBLY

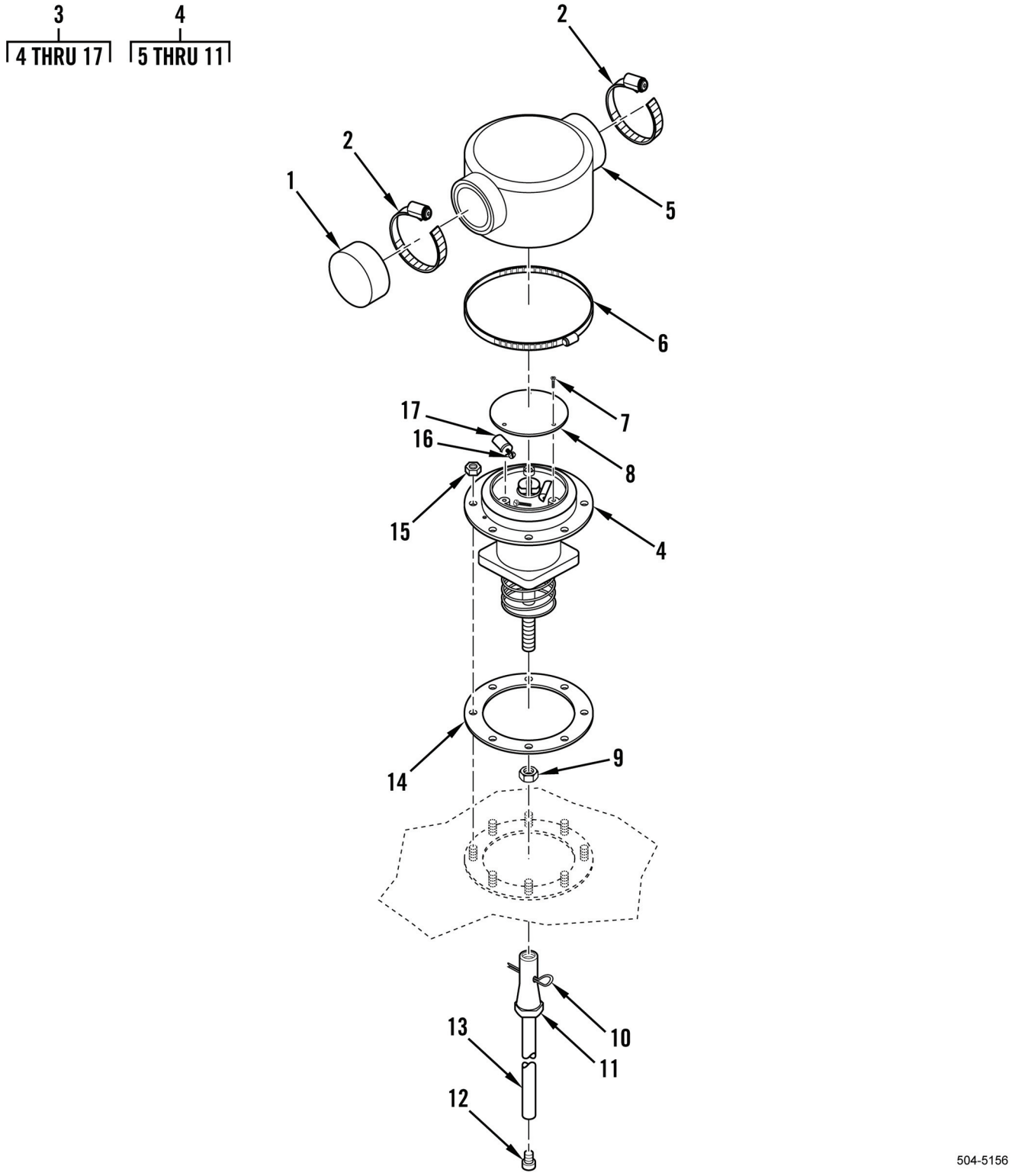


Figure 20. Vent Valve Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 17	
					FIG. 20 VENT VALVE ASSEMBLY	
1	PAFZZ	4730011589183	79318	2733418	PLUG,PIPE	1
2	PAFZZ	4730015846488	39428	5011T67	CLAMP,HOSE	2
3	PAFFF	4820016457627	80195	5251557	VENT,VALVE (VALVE ASSEMBLY)	1
4	XAFZZ		79318	F646ADP	.VENT VALVE ASSEMBLY (INCLUDES TWO SCREWS, PLATE, AND VALVE ASSEMBLY)	1
5	PAFZZ	4820011616372	79318	2731807-1	..HOOD,VENT,FUEL VALVE	1
6	PAFZZ	4730002018424	81646	56152	..CLAMP, HOSE	1
7	PAFZZ	5305016458441	79318	AN502C10-4	..SCREW,CAP,HEXAGON HEAD	3
8	PAFZZ	4810011659486	79318	2734801	..PLATE,VENT VALVE	1
9	PAFZZ	5310001535569	80205	AN316-9R	..NUT,PLAIN,HEXAGON	1
10	PAFZZ	5315000137214	80205	MS24665-359	..PIN,COTTER	1
11	PAFZZ	4820012212093	79318	4052-4	..SOCKET,VENT VALVE	1
12	PAFZZ	5340016458476	80195	5252596	.PLUG,PROTECTIVE,DUST AND MOISTURE SEAL (BUTTON,PLUG,VENT)	1
13	PAFZZ	3040016458506	80195	5252595	.CONNECTING LINK, RIGID (PUSHROD,VENT,VALVE)	1
14	PCFZZ	5330012877316	13226	G15266CB	.GASKET	1
15	PAFZZ	5310016050886	39428	95065A191	.NUT,SELF-LOCKING,HEXAGON	8
16	PAFZZ	5305016458485	80195	6100671	.SCREW,CAP,SOCKET HEAD	2
17	PAFZZ	5340016458508	80195	5251192	.CLAMP, SYNCHRO (HOLD DOWN, VAPOR VENT)	2
					END OF FIGURE	

FIELD MAINTENANCE

TANK COVER PLATE

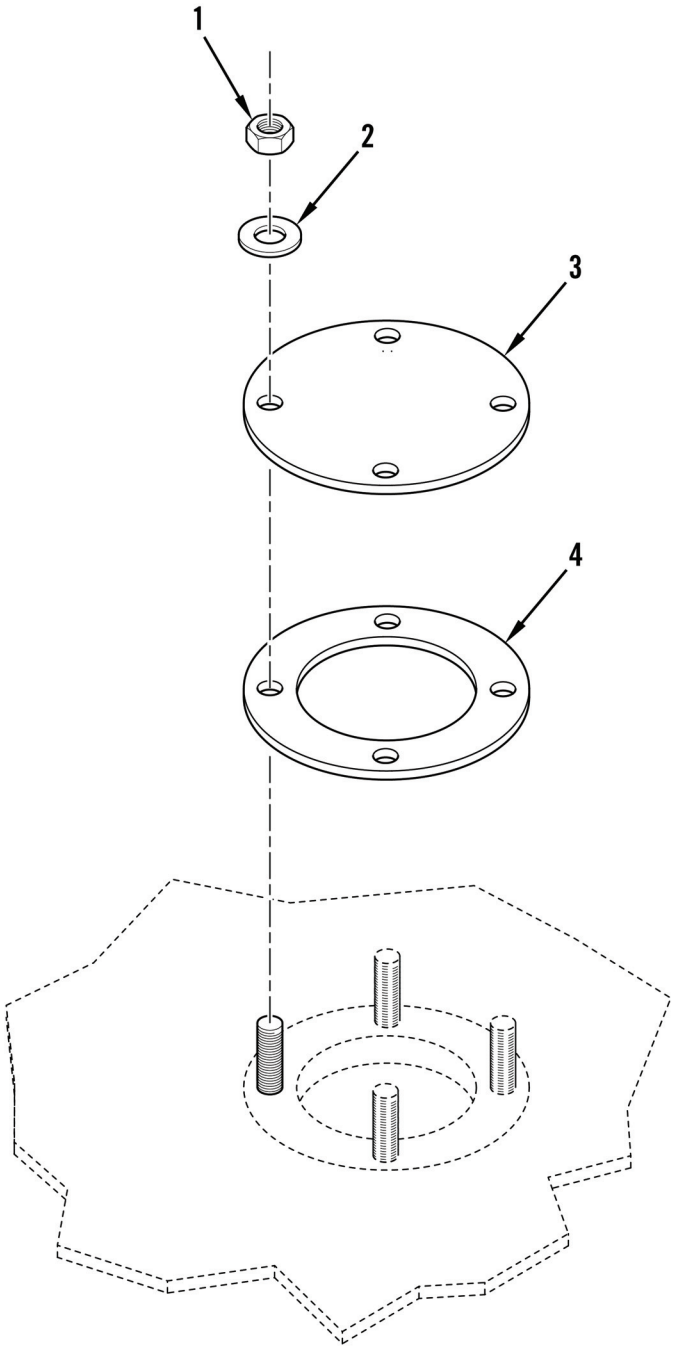


Figure 21. Tank Cover Plate.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 18	
					FIG. 21 TANK COVER PLATE	
1	PAFZZ	5310016050886	39428	95065A191	NUT,SELF-LOCKING,HEXAGON	4
2	PAFZZ	5310015088932	39428	90126A033	WASHER,FLAT.....	4
3	PAFZZ	5340015882813	80195	5252227	COVER,ACCESS (PLATE-BLANK,TANK SHELL COVER) ..	1
4	PAFZZ	5330015885004	39428	4459K75	GASKET	1
					END OF FIGURE	

FIELD MAINTENANCE

STOWAGE TUBE ASSEMBLY

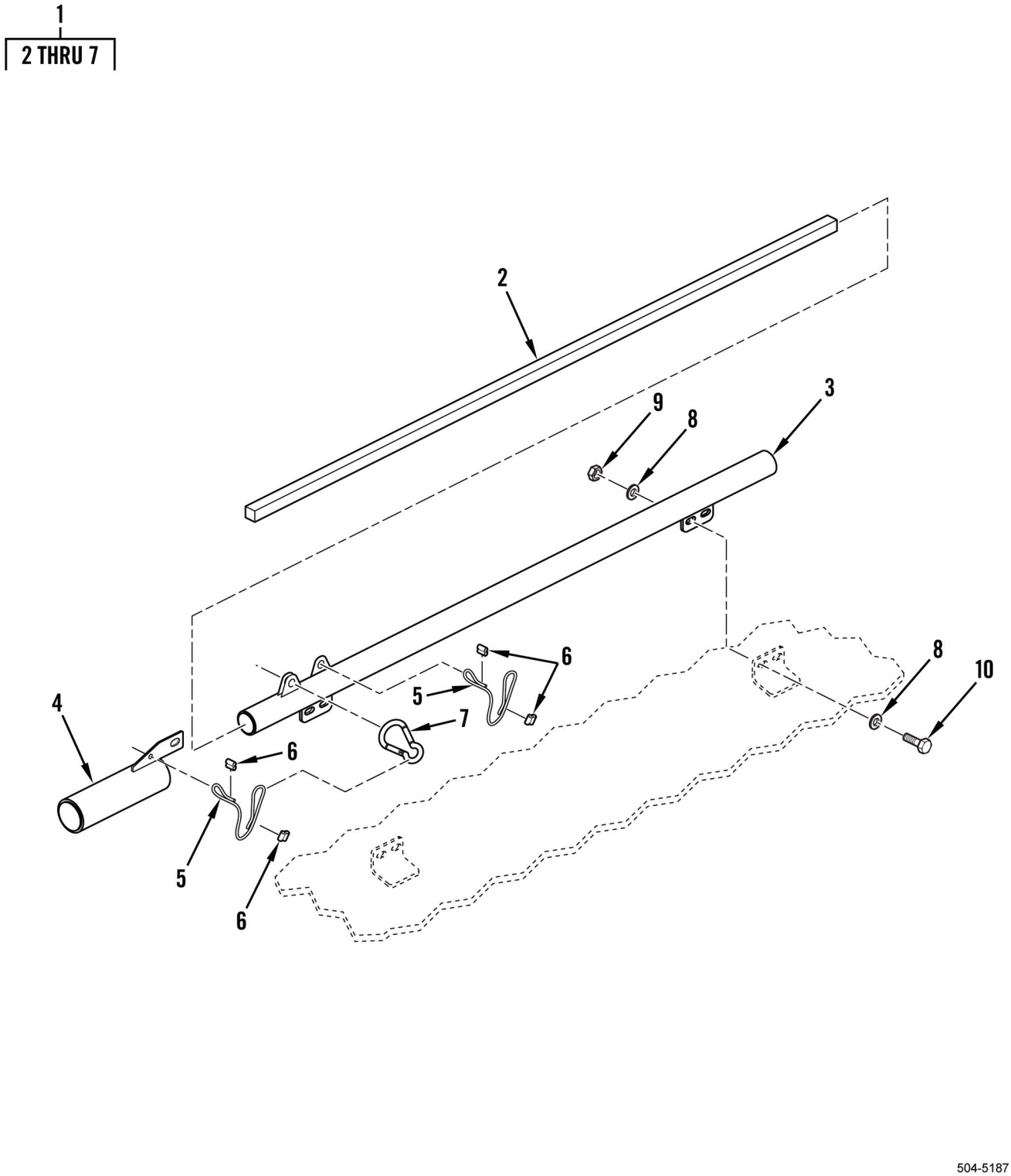


Figure 22. Stowage Tube Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 19	
					FIG. 22 STOWAGE TUBE ASSEMBLY	
1	PAFFF	2590015961805	80195	5252234	TUBE ASSEMBLY STOWAGE,GAUGE STICK	1
2	PAFZZ	6680015827535	80195	5252235	.GAUGE,STICK	1
3	PAFZZ	2590015967864	80195	5252236	.TUBE ASSEMBLY STOWAGE,GAUGE STICK	1
4	PAFZZ	5340015956032	80195	5252240	.COVER, PROTECTIVE, DUST AND MOISTURE SEAL	1
5	MFFZZ		80195	5252246	.ROPE, WIRE (CABLE,GAUGE STICK, MAKE FROM P/N 6001705, CUT TO LENGTH, 16 IN.)	2
6	PAFZZ	4030016329001	76691	488-4-VM	.SLEEVE,WIRE ROPE	4
7	PAFZZ	5340015929415	39428	3079T44	.SNAP HOOK	1
8	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	8
9	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	4
10	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,HEXAGON HEAD (BOLT)	4
					END OF FIGURE	

FIELD MAINTENANCE

FRONT AND REAR DRAIN LINES

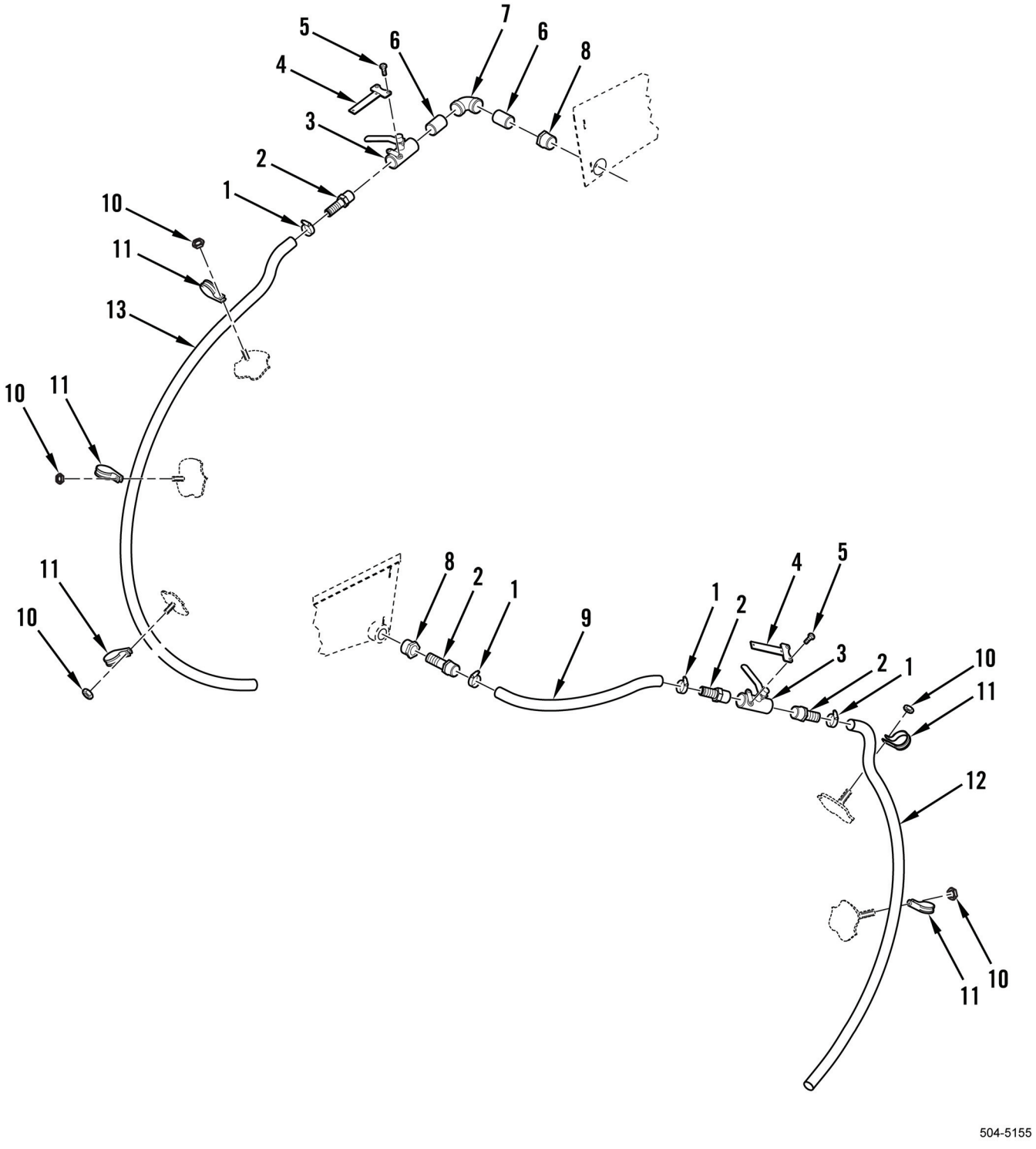


Figure 23. Front and Rear Drain Lines.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 20	
					FIG. 23 FRONT AND REAR DRAIN LINES	
1	PAFZZ	5340015956063	80195	6603080	CLAMP,LOOP	4
2	PAFZZ	4730015959425	80195	6200941	ADAPTER,STRAIGHT,PIPE (HOSE BARB)	4
3	PAFZZ	4820011456680	57661	76-104-01	BALL,VALVE,PORTED	2
4	PAFZZ	9905015924512	80195	5251556	PLATE SET,INSTRUCTION (VALVE SPILLBOX ID)	2
5	PAFZZ	5305009846210	77294	416995	.SCREW,MACHINE	4
6	PAFZZ	4730016458055	80195	L238006	NIPPLE,PIPE	2
7	PAFZZ	4730013004090	39428	4464K15	ELBOW,PIPE	1
8	PAFZZ	5365016458494	80195	6603075	BUSHING,MACHINE THREAD (BUSHING,PIPE)	2
9	MFFZZ		80195	5252377	HOSE,NONMETALLIC (SPILLBOX,MID,UPPER, MAKE FROM P/N 6603502, CUT TO LENGTH)	1
10	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	5
11	PAFZZ	5340014813344	4X630	863-000313	CLAMP,LOOP	5
12	MFFZZ		80195	5252378	HOSE,SPILLBOX,MID,LOWER (MAKE FROM P/N 6603502, CUT TO LENGTH)	1
13	MFFZZ		80195	5252379	HOSE SPILLBOX,END (MAKE FROM P/N 6603502, CUT TO LENGTH)	1
					END OF FIGURE	

FIELD MAINTENANCE

LIQUID LEVEL SWITCH

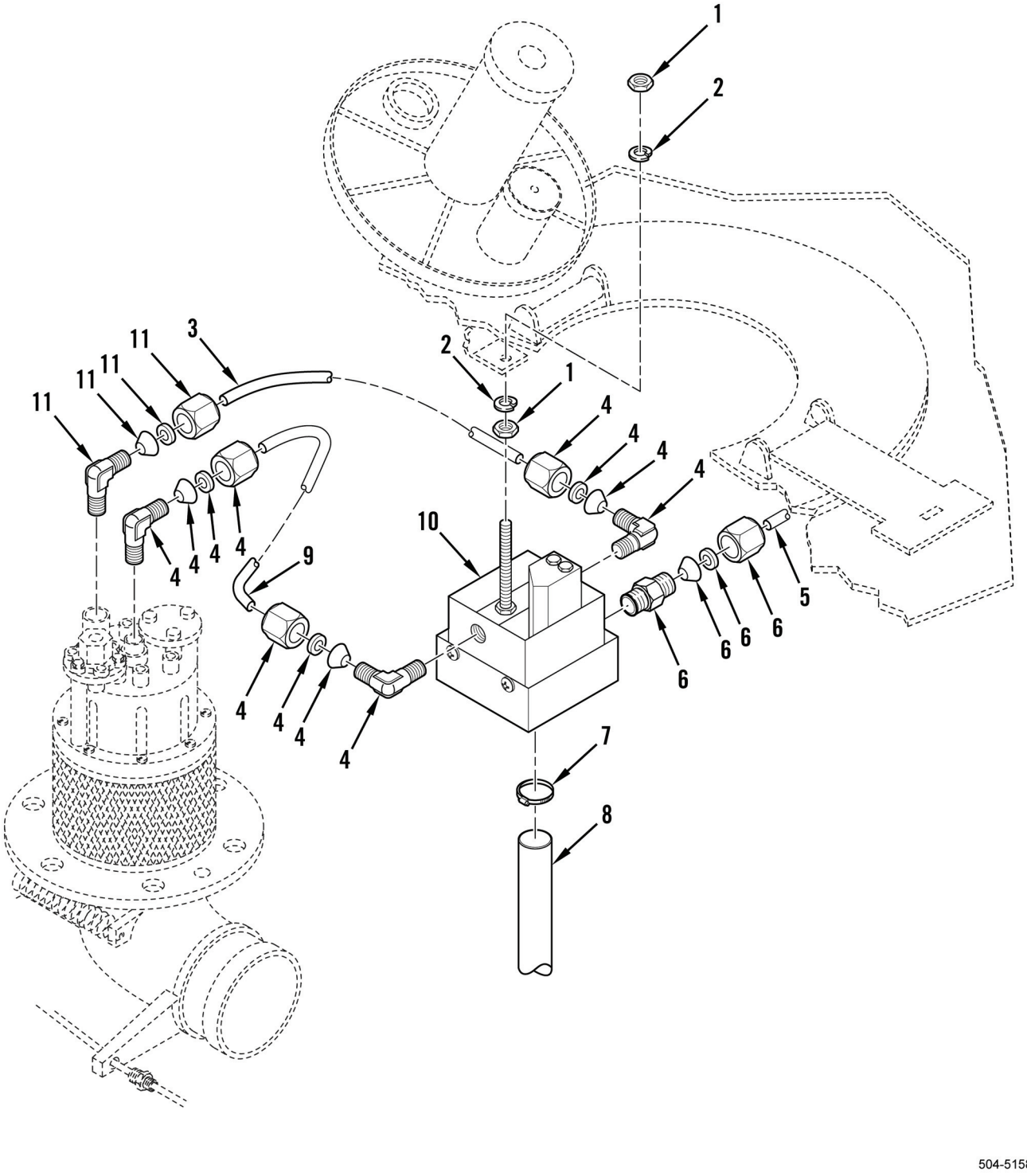


Figure 24. Liquid Level Switch.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 21	
					FIG. 24 LIQUID LEVEL SWITCH	
1	PAFZZ	5310015942124	80195	T181741	NUT,SELF-LOCKING,HEXAGON	2
2	PAFZZ	5310015956054	80195	6100459	WASHER,LOCK	2
3	MFFZZ		80195	5252383	TUBE,NYLON,BLUE (MAKE FROM P/N PFT-6B-BLU, CUT TO LENGTH)	1
4	PAFZZ	4730015853715	80195	6603290	ELBOW,PIPE (TUBE TO BOSS, INCLUDES COMPRESSION FITTINGS)	3
5	MFFZZ		80195	5252384	TUBE,NYLON,CLEAR (MAKE FROM P/N PFT-6B, CUT TO LENGTH)	1
6	PAFZZ	4730015845096	80195	6603515	ADAPTER,STRAIGHT,PIPE TO HOSE (INCLUDES COMPRESSION FITTINGS)	1
7	PAFZZ	4730016468826	81646	63004-0024	CLAMP,HOSE,WORM DRIVE	1
8	MFFZZ		80195	5252380	HOSE,NONMETALLIC (DRAIN, MAKE FROM P/N 569-043, CUT TO LENGTH)	1
9	MFFZZ		80195	5252382	TUBE,NYLON,RED (MAKE FROM P/N PFT-6B-RED 500, CUT TO LENGTH)	1
10	PAFZZ		79318	F613ACD	SWITCH,LIQUID LEVEL (PRESSURE)	1
11	PAFZZ	4730015959503	80195	6603516	ELBOW,PIPE TO TUBE (INCLUDES COMPRESSION FITTINGS)	1
					END OF FIGURE	

FIELD MAINTENANCE

TOOL BOX

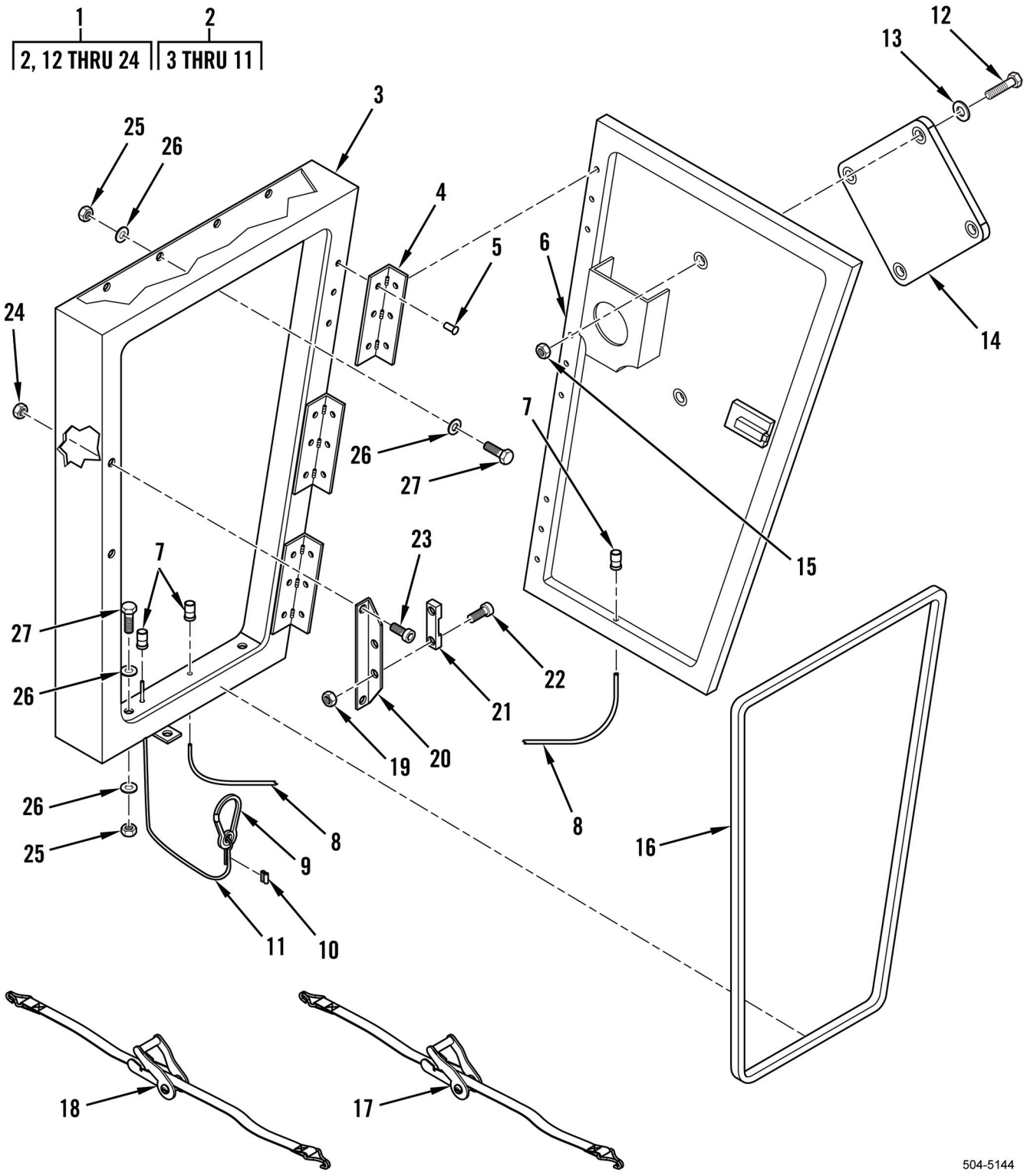


Figure 25. Tool Box.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 22	
					FIG. 25 TOOL BOX	
1	PDFFF	2540016457549	80195	5252360	BOX,ACCESSORIES STOWAGE (CABINET,TRM STORAGE)	1
2	PBFFF	2540016457547	80195	5251628	.BOX,ACCESSORIES STOWAGE (TOOLBOX ASSEMBLY)	1
3	PAFZZ	7125015937815	80195	5251627	..CABINET,STORAGE	1
4	PAFZZ	5340015929786	80195	5250973	..HINGE,BUTT	3
5	PAFZZ	5320015886008	0Y3H3	12759-01020	..RIVET,SOLID (5/32 IN., 0.063 TO 0.125 IN. THICKNESS)	18
6	PAFZZ	5340015935280	80195	5250968	..DOOR,ACCESS,GENERAL	1
7	PAFZZ	3120015885497	80195	6001724	..BUSHING,SLEEVE	3
8	PAFZZ	2510015931000	80195	5251119	..STRAP,DOOR CHECK,VEHICULAR	1
9	PAFZZ	5340015929415	39428	3079T44	..SNAP HOOK	1
10	PAFZZ	4030016329001	76691	488-4-VM	..SLEEVE,WIRE ROPE	1
11	PAFZZ	4010016467054	80195	5251746	..ROPE,WIRE (CABLE,TOOLBOX LATCH)	1
12	PAFZZ	5305015779592	07BY4	92196A242	.SCREW,CAP,SOCKET HEAD (BOLT)	2
13	PAFZZ	5310015475839	39428	90313A400	.WASHER,FLAT	2
14	PAFZZ	9905013795693	19207	12380149	.PLATE,INSTRUCTION	1
15	PAFZZ	5310014634929	39428	91831A011	.NUT,SELF-LOCKING,HEXAGON	2
16	PAFZZ	5330015935278	80195	5250980	.SEAL,NONMETALLIC, SPECIAL SHAPED SECTION	1
17	PAFZZ	5340015917679	80195	6001716	.STRAP,RETAINING	1
18	PAFZZ	5340015886495	0HBT5	GOCB1515 8X24	.STRAP,RETAINING	1
19	PAFZZ	5310015956047	80195	6001676	.NUT,SELF-LOCKING,HEXAGON	2
20	PAFZZ	5340016325255	80195	5251749	.STRIKER,FRAME,TOOLBOX	1
21	PAFZZ	5340015882714	80195	6001669	.STRIKE,CATCH	2
22	PAFZZ	5305015751984	39428	91306A375	.SCREW,CAP,HEXAGON HEAD (BOLT)	2
23	PAFZZ	5305015935452	80195	6001675	.SCREW,MACHINE	2
24	PAFZZ	5310000881251	81349	M45913/1-4CG5C	.NUT,SELF-LOCKING,HEXAGON	2
25	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	6
26	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	12
27	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP, HEXAGON HEAD (BOLT)	6
					END OF FIGURE	

FIELD MAINTENANCE

FLANGE ADAPTER ASSEMBLY

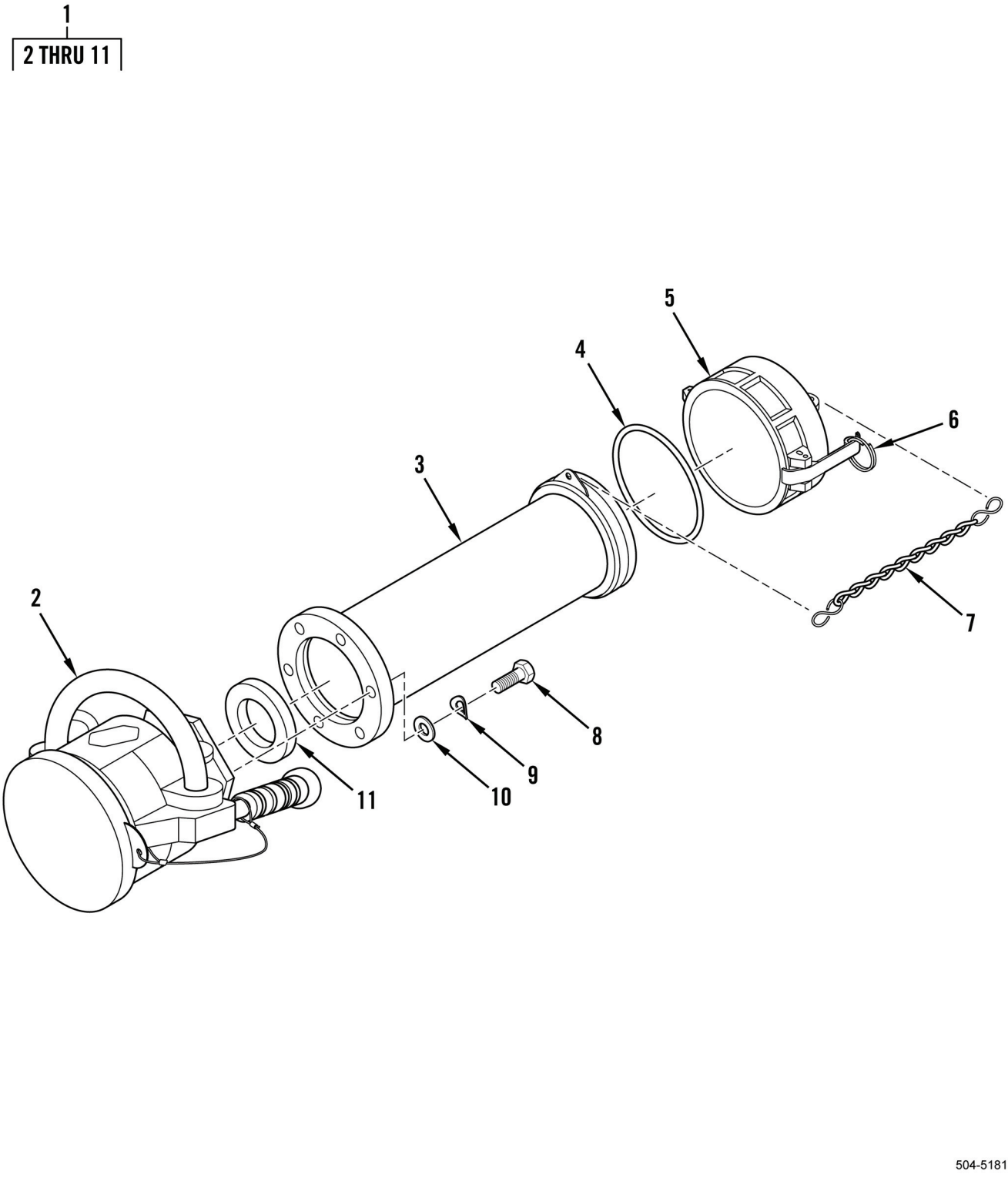


Figure 26. Flange Adapter Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 22	
					GROUP 2202	
					FIG. 26 FLANGE ADAPTER ASSEMBLY	
1	PAFFF	4930016457559	80195	5252372	SPOUT,FUEL AND OIL SERVICING NOZZLE (FLANGE ADAPTER ASSEMBLY)	1
2	PAFZZ	4930014838060	86184	20170407J	.NOZZLE,FUEL AND OIL SERVICING	1
3	PAFZZ	4730015827910	80195	5251624	.ADAPTER AND FLANGE ASSEMBLY	1
4	PCFZZ	5330000889166	58536	AA59326-G8	..GASKET	1
5	PAFZZ	4730009290787	58536	AA59326/10-8-A	..CAP, QUICK DISCONNECT	1
6	PAFZZ	5340015150537	39428	86805T38	..HOLDER,KEY (SPLIT RING)	2
7	PAFZZ	4010015264895	39428	3610T32	..CHAIN,WELDLESS	1
8	PAFZZ	5305014519220	39428	92865A542	.SCREW,CAP,HEXAGON HEAD (BOLT)	6
9	PAFZZ	5310010830799	80195	0120380	.WASHER,LOCK	6
10	PAFZZ	5310015316758	39428	90108A413	.WASHER,FLAT	6
11	PCFZZ	5331009359226	81343	MS29513-151	.O-RING	1
					END OF FIGURE	

FIELD MAINTENANCE

NOZZLE ASSEMBLY WITH VALVED UNISEX COUPLING

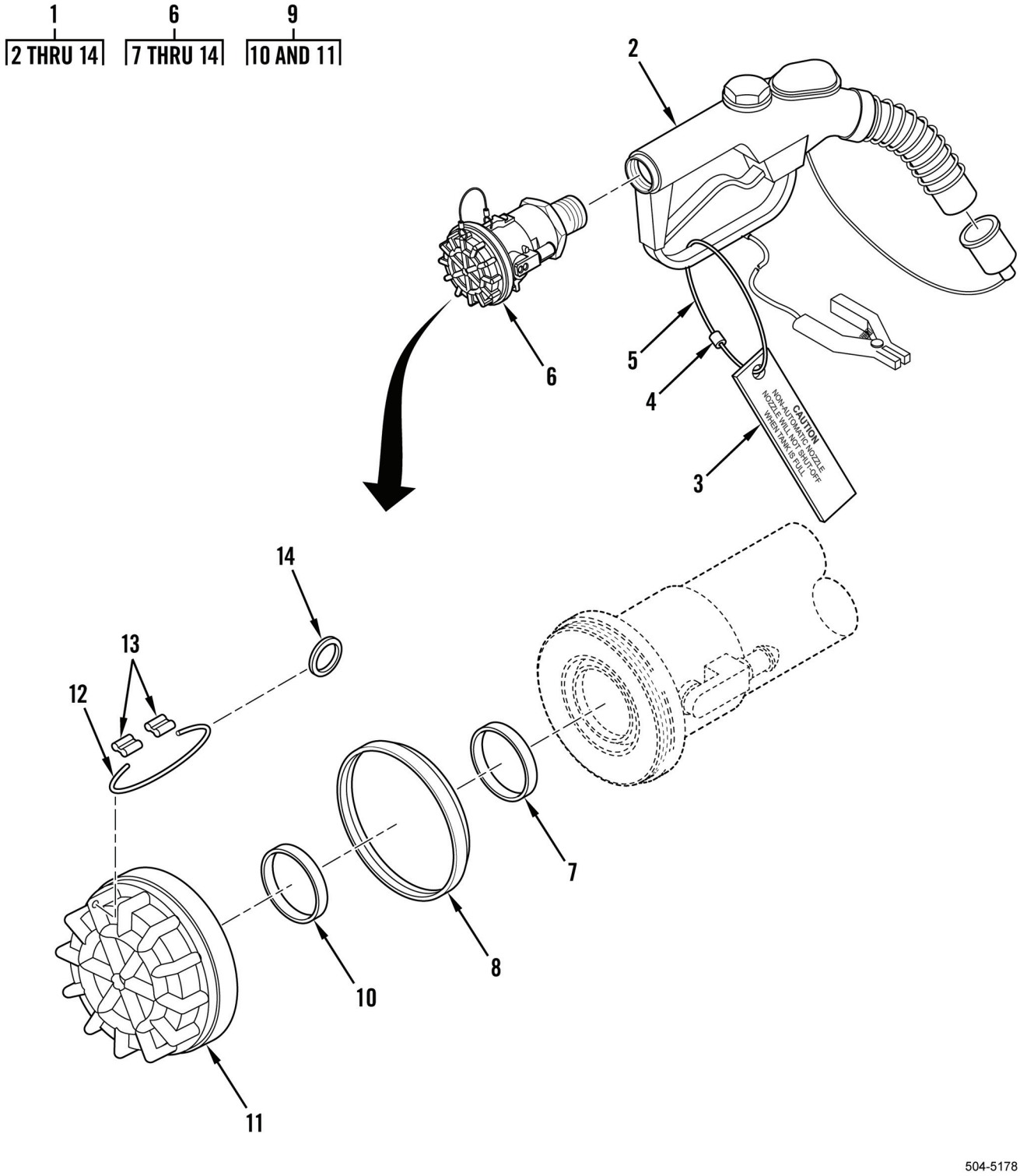


Figure 27. Nozzle Assembly with Valved Unisex Coupling.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 22	
					GROUP 2203	
					FIG. 27 NOZZLE ASSEMBLY WITH VALVED UNISEX COUPLING	
1	PAFFF	4730016332126	80195	5252381	FUEL NOZZLE W/UNISEX	1
2	PAFZZ	4930015827514	41592	300ALMM200ANAJ	.NOZZLE,FUEL AND OIL	1
3	PAFZZ	9905016336176	80195	5251736	.PLATE,INSTRUCTION (SHUT OFF)	1
4	PAFZZ	3120015885497	80195	6001724	.BUSHING,SLEEVE	1
5	MFFZZ		80195	5252443	.ROPE,WIRE (MAKE FROM P/N M83420/2-002, CUT TO LENGTH)	1
6	PAFFF	4730016331707	61125	USC10001	.COUPLING HALF,QUICK DISCONNECT	1
7	PCCZZ	5330016413634	61125	RJ0009	..SEAL,INTERFACE	1
8	PCCZZ	2510016413811	61125	RJ0001	..CAP,BUMPER	1
9	PAFFF	5340016452593	61125	RJA1003	..CAP,PROTECTIVE,DUST AND MOISTURE SEAL (DUST CAP)	1
10	PCFZZ	5330016413634	61125	RJ0009	...SEAL,INTERFACE	1
11	PAFZZ	4730016452589	61125	RJ0015	...CAP,QUICK DISCONNECT	1
12	PAFZZ	4010005756233	81349	M83420/4-010	..ROPE,WIRE (LANYARD,SHORT, MAKE FROM P/N M83420/2-002, CUT TO LENGTH)	1
13	PAFZZ	4030015167545	53711	5793250 FIND 326	..SWAGING SLEEVE,WIRE ROPE	2
14	PAFZZ	5340015150537	39428	86805T38	..HOLDER,KEY(SPLIT RING)	1
					END OF FIGURE	

FIELD MAINTENANCE

FEMALE NATO ADAPTER ASSEMBLY

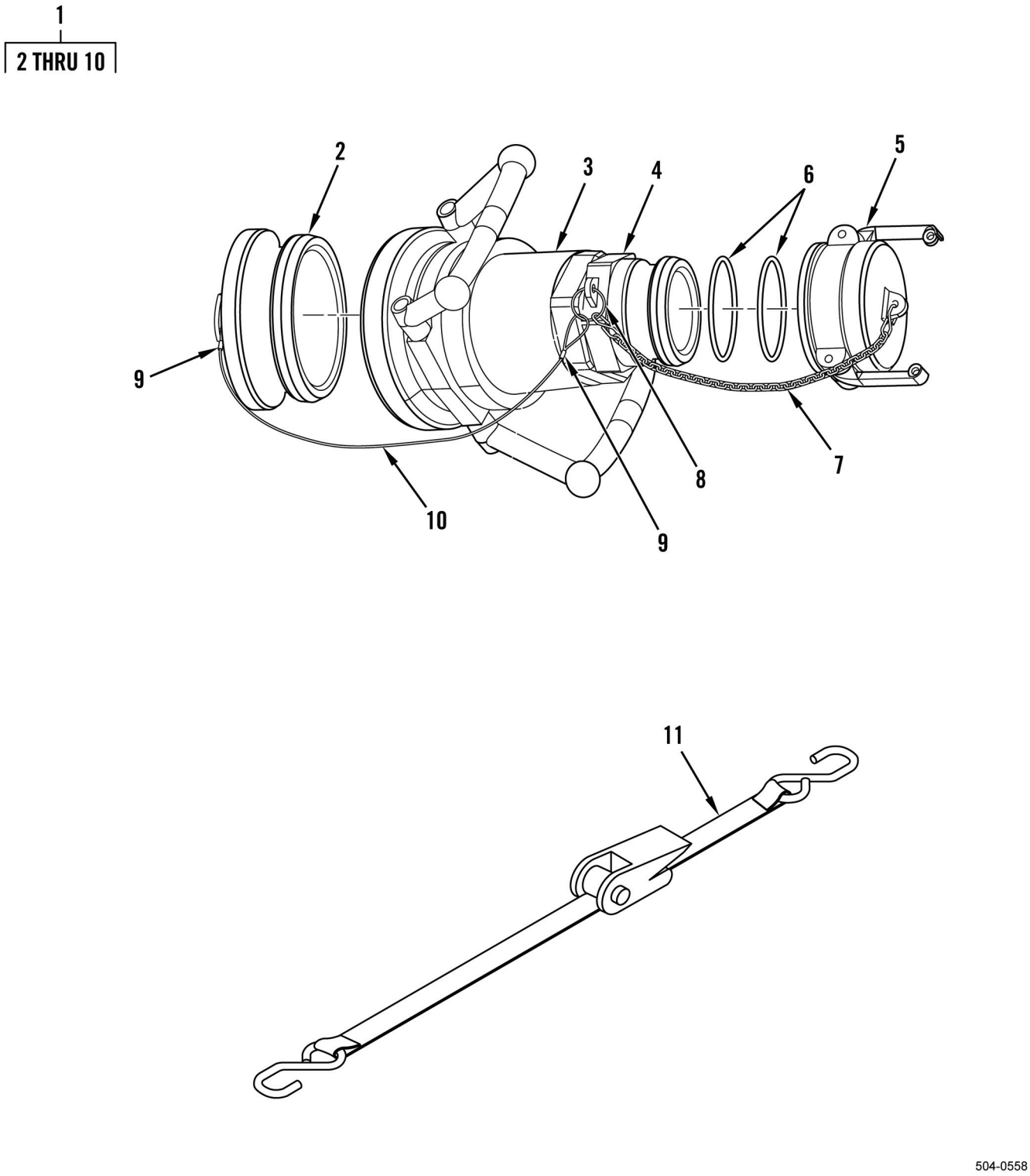


Figure 28. Female NATO Adapter Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 22	
					GROUP 2204	
					FIG. 28 FEMALE NATO ADAPTER ASSEMBLY	
1	PAFFF	4730016322839	80195	5252420	PARTS KIT,QUICK DISCONNECT COUPLING ASSEMBLY (NATO CONNECTOR ASSEMBLY)	1
2	PAFZZ	4730016322858	72661	DDDP300	.NATO CONNECTOR PLUG	1
3	PAFZZ	4730016322861	72661	DDC300AL	.NATO CONNECTOR,FEMALE	1
4	PAFZZ	4730015788045	72661	300-F-AL	.COUPLING,HOSE	1
5	PAFZZ	4730009290787	36933	300DC	.CAP,QUICK DISCONNECT	1
6	PCFZZ	5330000889166	58536	AA59326-G8	..GASKET	2
7	PAFZZ	4010015264895	39428	3610T32	.CHAIN,WELDLESS	1
8	PAFZZ	5340015150537	39428	86805T38	.HOLDER,KEY (SPLIT RING)	2
9	PAFZZ	3120015885497	39428	3936T14	.BUSHING,SLEEVE	4
10	PAFZZ	4010011518298	S0110	PL13631000	.ROPE,WIRE	2
11	PAFZZ	5340015886495	0HBT5	GOCB1515 8X24	STRAP,RETAINING	1
					END OF FIGURE	

FIELD MAINTENANCE

MALE NATO ADAPTER ASSEMBLY

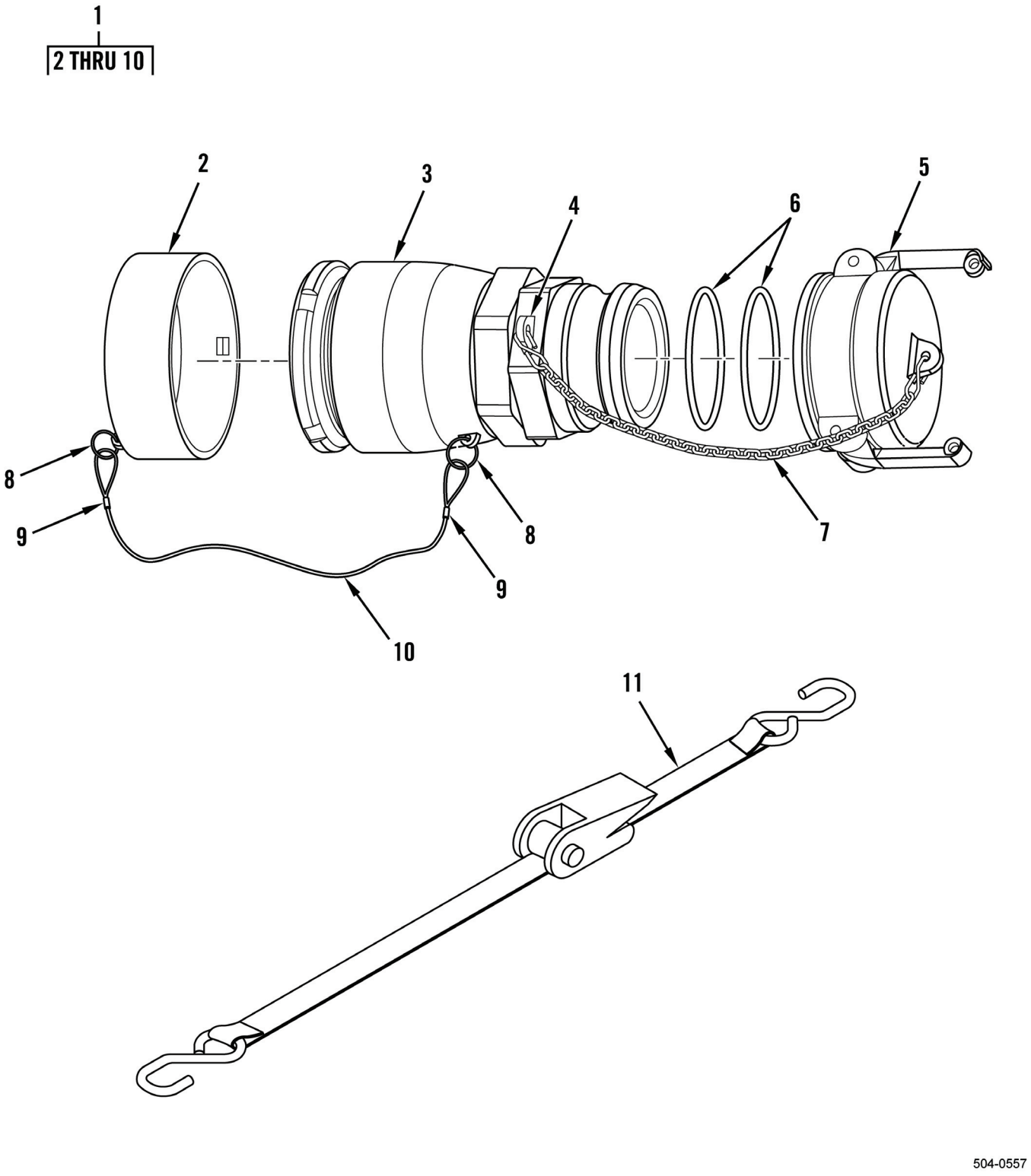


Figure 29. Male NATO Adapter Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 22	
					GROUP 2204	
					FIG. 29 MALE NATO ADAPTER ASSEMBLY	
1	PAFFF	4730016322845	80195	5252421	PARTS KIT,QUICK DISCONNECT COUPLING ASSEMBLY (NATO CONNECTOR ASSEMBLY)	1
2	PAFZZ	4730016322871	72661	DDDC300	.NATO CONNECTOR CAP	1
3	PAFZZ	4730016322865	72661	DDA300AL	.NATO CONNECTOR,MALE	1
4	PAFZZ	4730015788045	72661	300-F-AL	.COUPLING,HOSE	1
5	PAFZZ	4730009290787	36933	300DC	.CAP,QUICK DISCONNECT	1
6	PCFZZ	5330000889166	58536	AA59326-G8	..GASKET	2
7	PAFZZ	4010015264895	39428	3610T32	.CHAIN,WELDLESS	1
8	PAFZZ	5340015150537	39428	86805T38	.HOLDER,KEY (SPLIT RING)	2
9	PAFZZ	3120015885497	39428	3936T14	.BUSHING,SLEEVE	4
10	PAFZZ	4010011518298	S0110	PL13631000	.ROPE,WIRE	2
11	PAFZZ	5340015886495	0HBT5	GOCB1515 8X24	STRAP,RETAINING	1
					END OF FIGURE	

FIELD MAINTENANCE

ADAPTER ASSEMBLY

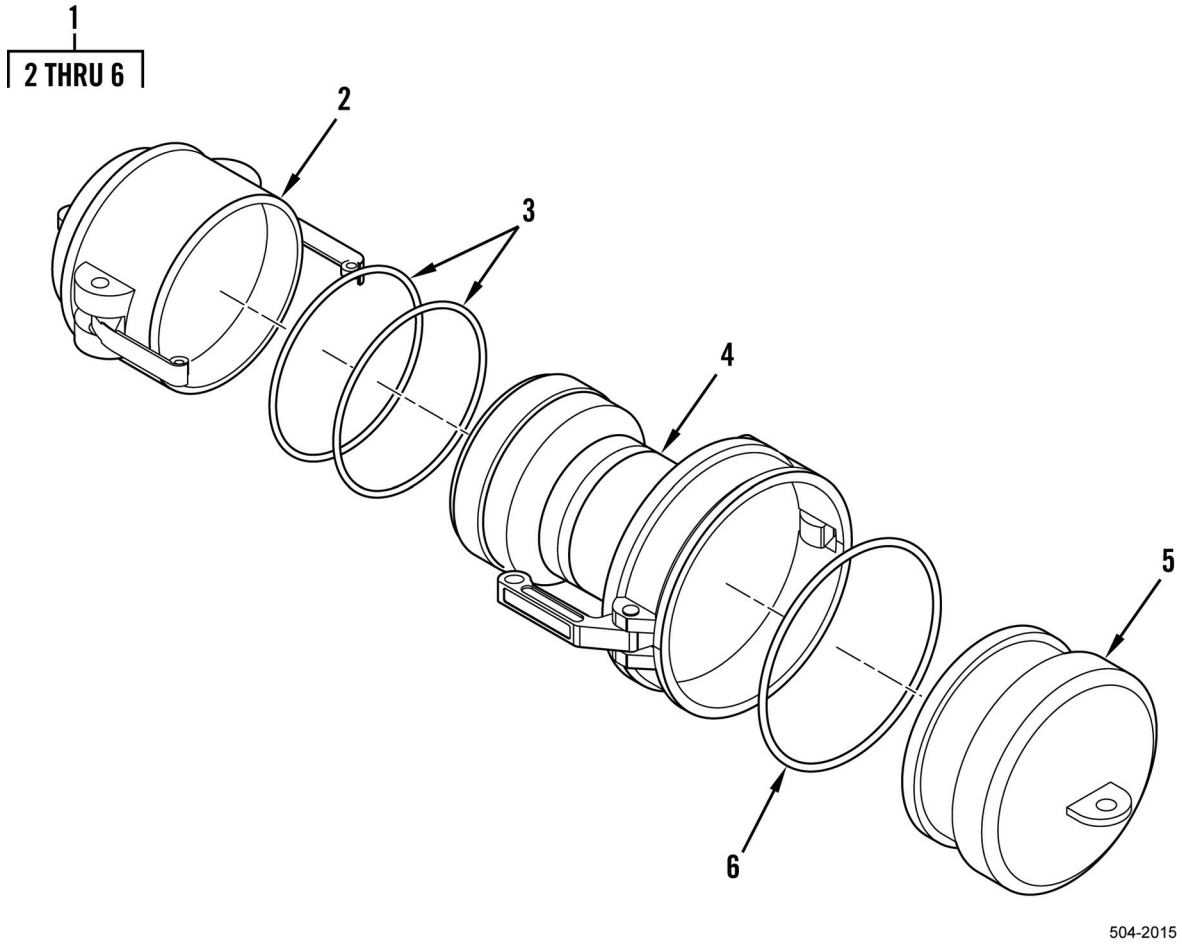


Figure 30. Adapter Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 22	
					GROUP 2205	
					FIG. 30 ADAPTER ASSEMBLY	
1	PAFFF	4730016327270	80195	5252424	ADAPTER ASSEMBLY TRM (4 IN. MALE TO 3 IN. FEMALE)	1
2	PAFZZ	4730006406156	58536	AA59326IX-9	.CAP,QUICK DISCONNECT.....	1
3	PCCZZ	5330008994509	58536	AA59326-G-9	..GASKET.....	2
4	PAFZZ	4730009513296	58536	AA59326/12-5-A-2	.ADAPTER,REDUCER CAMLOCK.....	1
5	PAFZZ	4730009290790	58536	AA59326X1	.PLUG,DUST.....	1
6	PCFZZ	5330000889166	58536	AA59326-G8	..GASKET.....	1
					END OF FIGURE	

FIELD MAINTENANCE

CABLE TRAY ASSEMBLY

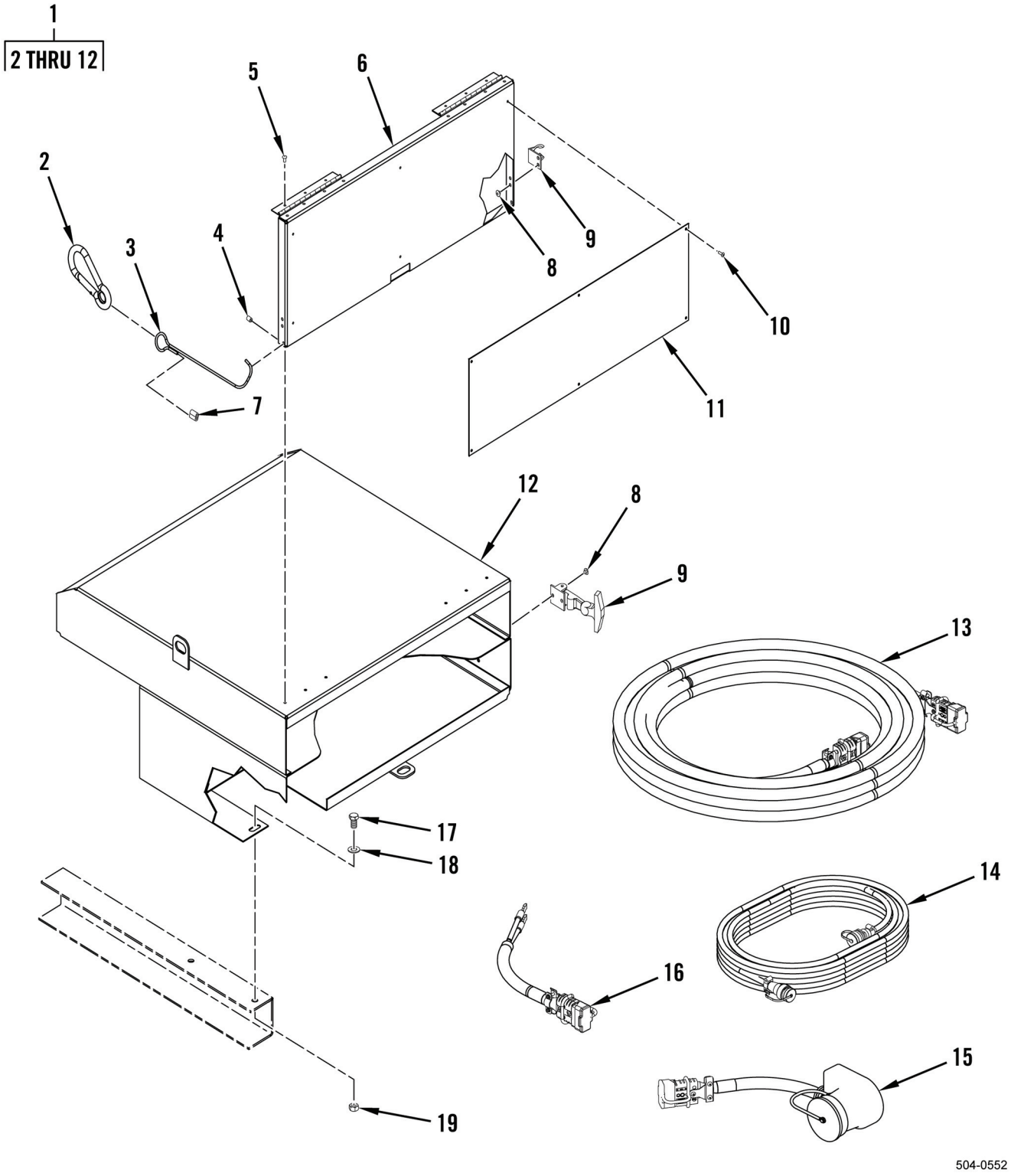


Figure 31. Cable Tray Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 23	
					FIG. 31 CABLE TRAY ASSEMBLY	
1	PDFFF	2540016457648	80195	5252508	CABLE TRAY ASSEMBLY	1
2	PAFZZ	5340015929415	39428	3079T44	.SNAP HOOK (CLIP)	1
3	MFFZZ		80195	5252523	.ROPE,WIRE (TETHER,CABLE TRAY LATCH, MAKE FROM P/N 6001705, CUT TO LENGTH)	1
4	PAFZZ	3120015885497	80195	6001724	.BUSHING,SLEEVE	1
5	PAFZZ	5320015886008	0Y3H3	12759-01020	.RIVET,SOLID (5/32 IN., 0.063 TO 0.125 IN. THICKNESS)	6
6	XBFZZ		80195	5252513	.COVER WMT,CABLE TRAY	1
7	PAFZZ	4030016329001	76691	488-4-VM	.SLEEVE,WIRE ROPE	1
8	PAFZZ	5320015800869	3A054	97525A485	.RIVET,BLIND (3/16 IN., 0.063 TO 0.125 IN. THICKNESS)	4
9	PAFZZ	5340014241221	94222	37-20-086-10	.CATCH,CLAMPING (INCLUDES LATCH AND KEEPER)	1
10	PAFZZ	5320015846190	39428	97525A615	.RIVET,BLIND (1/8 IN., 0.063 TO 0.125 IN. THICKNESS)	6
11	PAFZZ	7690016458464	80195	5252524	.MARKER,IDENTIFICATION (DATA PLATE,TRM OPERATION)	1
12	XBFZZ		80195	5252509	.TRAY WMT,CABLE	1
13	PAFZZ	6150016457609	80195	5252504	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (SLAVE CABLE ASSEMBLY)	1
14	PAFZZ	6150016457604	80195	5252546	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (PUMP CABLE ASSEMBLY)	1
15	PAFZZ	6150016457584	80195	5252505	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (NATO CABLE ASSEMBLY)	1
16	PAFZZ	6150016457577	80195	5252506	CABLE ASSEMBLY, SPECIAL PURPOSE, ELECTRICAL (GENERATOR CABLE ASSEMBLY)	1
17	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,HEXAGON HEAD (BOLT)	4
18	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	4
19	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	4
					END OF FIGURE	

FIELD MAINTENANCE

REMOTE CONTROL SWITCH BOX ASSEMBLY

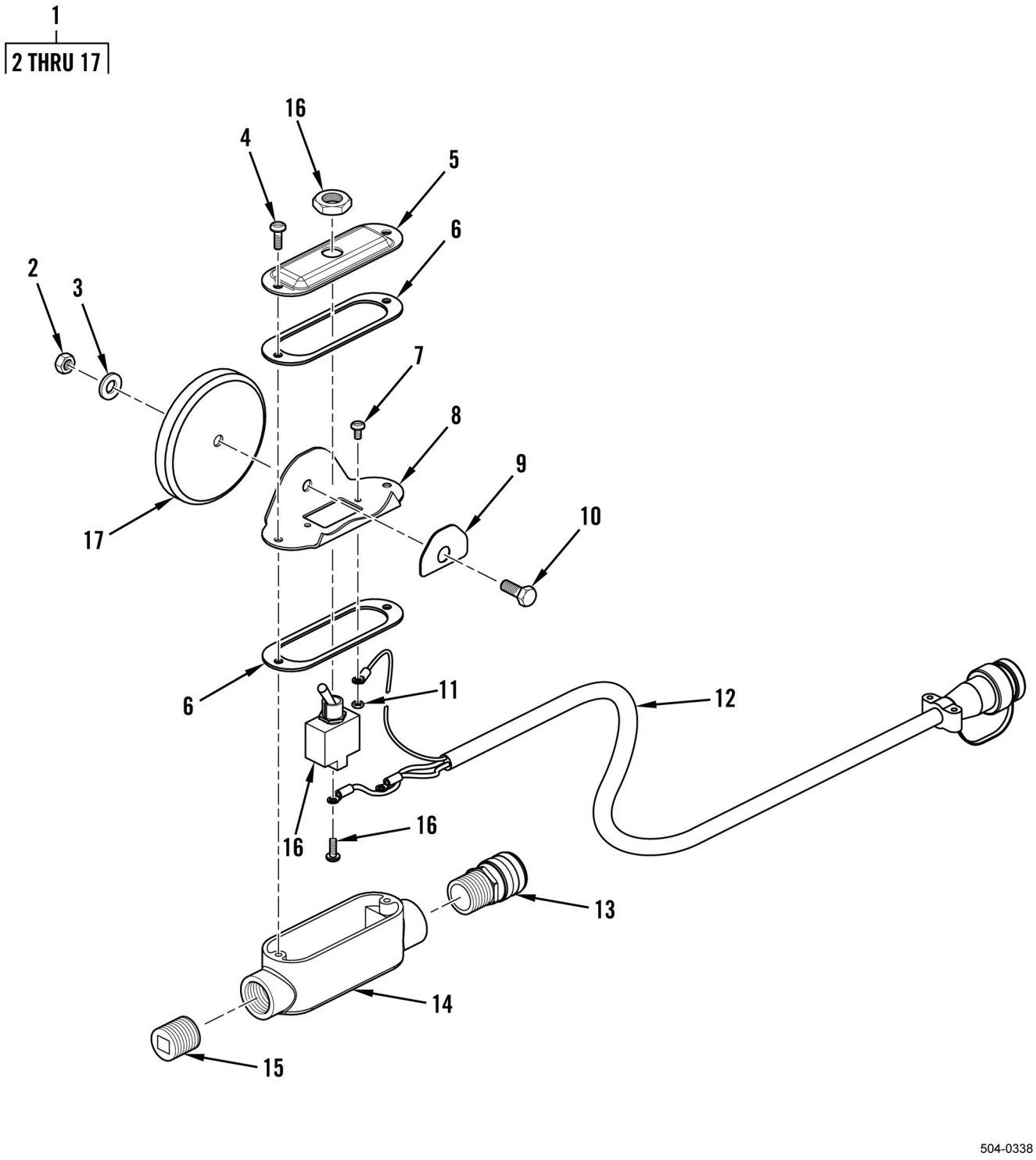


Figure 32. Remote Control Switch Box Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 23	
					GROUP 2302	
					FIG. 32 REMOTE CONTROL SWITCH BOX ASSEMBLY	
1	PAFFF	5930016466451	80195	5252563	SWITCH BOX ASSEMBLY (REMOTE CONTROL)	1
2	PAFZZ	5310000881251	81349	M45913/1-4CG5C	.NUT,SELF-LOCKING,HEXAGON	1
3	PAFZZ	5310015316758	39428	90108A413	.WASHER,FLAT	2
4	PAFZZ	5305013510882	39428	90283A194	.SCREW,MACHINE	2
5	PAFZZ	5340016467060	80195	5252561	.COVER,ACCESS (DRILLED,SWITCH)	1
6	PAFZZ	5330012027608	03743	GK50-N	.GASKET	2
7	PAFZZ	5305016247623	39428	90283A144	.SCREW,MACHINE	1
8	PAFZZ		80195	5252562	.GUARD,SWITCH (REMOTE)	1
9	PAFZZ		80195	5252565	.MARKER,IDENTIFICATION (DATA PLATE,REMOTE SWITCH)	1
10	PAFZZ	5306015333783	39428	92865A537	.BOLT,MACHINE	1
11	PAFZZ	5310002725771	39428	90480A007	.NUT,PLAIN,HEXAGON	1
12	PAFZZ	6150016466268	80195	5252545	.CABLE ASSEMBLY,SPECIAL PURPOSE,ELECTRICAL (PUMP CABLE ASSEMBLY)	1
13	PAFZZ	5935009581897	81337	5-4-4699	.SHELL,ELECTRICAL CONNECTOR (CONDUIT FITTING)	1
14	PAFZZ	5975002386010	03743	C50-A	.CONDUIT OUTLET	1
15	PAFZZ		80195	6201142	.PLUG,PIPE	1
16	PAFZZ	5930006831628	81349	MS24523-22	.SWITCH,TOGGLE (INCLUDES NUT AND SCREWS)	1
17	PAFZZ	5340015883188	39428	5685K39	.MAGNET,PERMANENT	1
					END OF FIGURE	

FIELD MAINTENANCE

BOTTOM LOAD VALVE PIPING ASSEMBLY

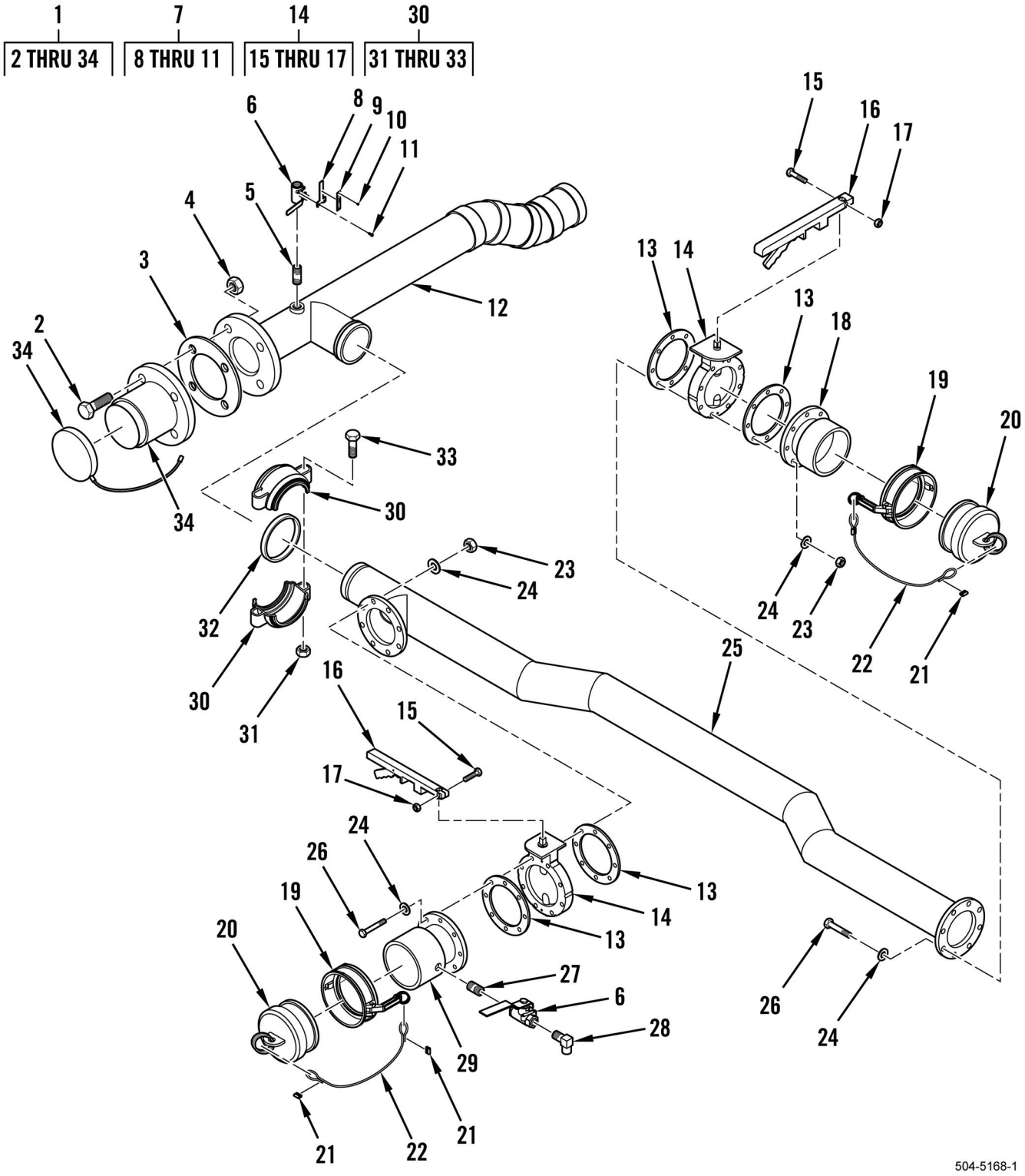


Figure 33. Bottom Load Valve Piping Assembly (Sheet 1 of 2).

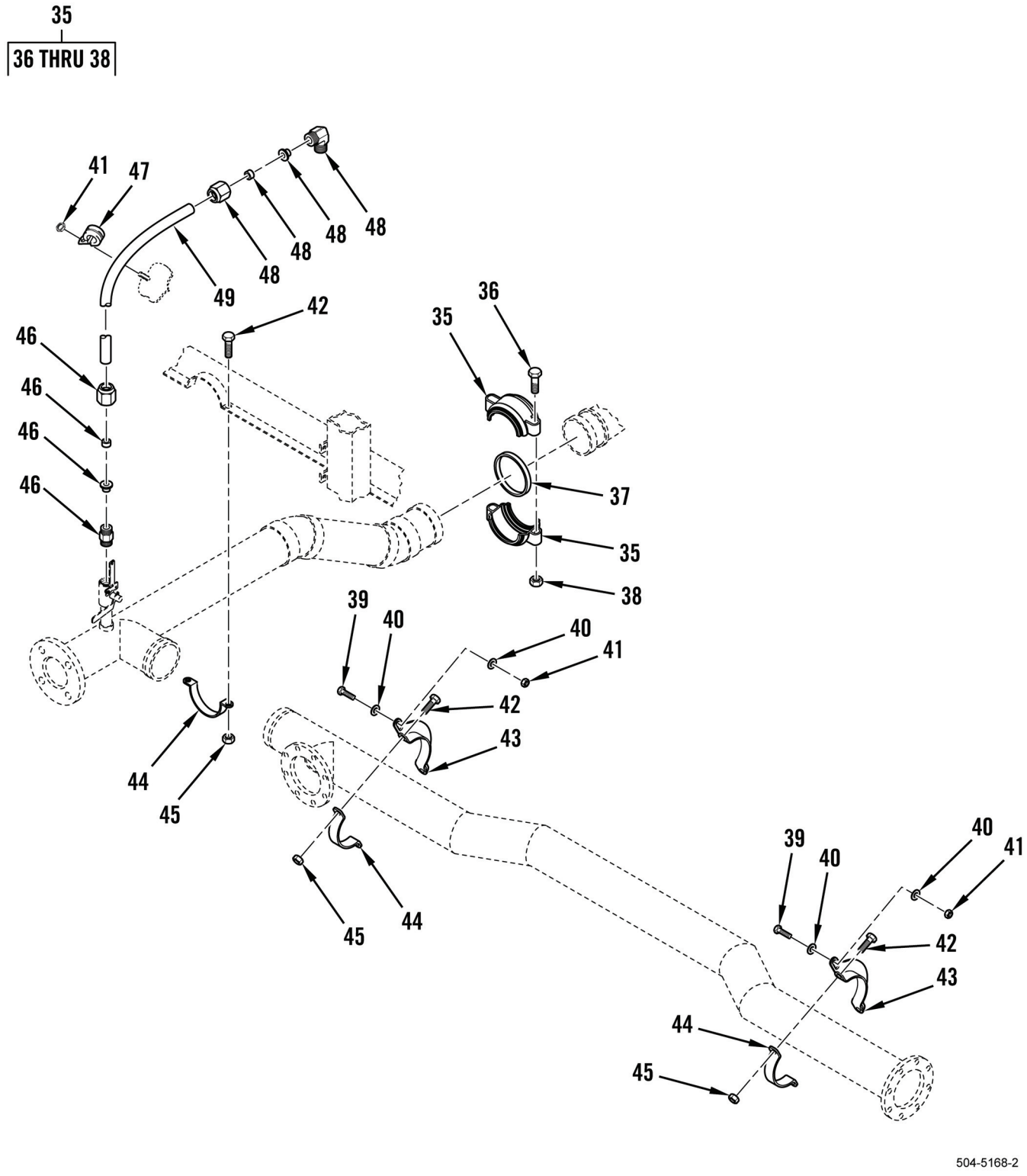


Figure 33. Bottom Load Valve Piping Assembly (Sheet 2 of 2).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 24	
					FIG. 33 BOTTOM LOAD VALVE PIPING ASSEMBLY	
1	PDFFF	4710016325831	80195	5251604	PIPE ASSEMBLY,METAL	1
2	PAFZZ	5305016326865	80195	0223515-CR	.SCREW,CAP,HEXAGON HEAD (BOLT)	4
3	PCFZZ	5330015956060	80195	6603097	.GASKET	1
4	PAFZZ		80195	9413948	.NUT,SELF-LOCKING, HEXAGON	4
5	PAFZZ	4730004193016	54938	6-6-MCN-SS	.NIPPLE,PIPE	1
6	PAFZZ	4820015959891	80195	6603089	.VALVE,BALL (V6 AND VB1)	2
7	PAFZZ	5340016322944	80195	5251563	.BRACKET,MOUNTING (PLATE SET, IDENTIFICATION, V6 VALVE)	1
8	PAFZZ	5340016322646	80195	5251116	..BRACKET,MOUNTING (DATA PLATE)	1
9	PAFZZ	9905015867039	80195	5251036	..PLATE,INSTRUCTION	1
10	PAFZZ	5320001299706	81349	M24243/1-F402	..RIVET,BLIND	2
11	PAFZZ	5305016324783	80195	6100669	..SCREW,MACHINE	2
12	PAFZZ	4710016466448	80195	5251599	.BOTTOM LOADING PIPING	1
13	PCFZZ	5330015668357	80195	6000071	.GASKET (NON-ASBESTOS)	4
14	PAFZZ	4820016324564	13226	WD304 AL V	.VALVE,BUTTERFLY (V5 AND V13)	2
15	PAFZZ	5305015047427	13226	9Q5884	..SCREW,CAP,HEXAGON HEAD (BOLT)	1
16	PAFZZ	5340015047309	13326	26284AL	..LEVER,MANUAL CONTROL	1
17	PAFZZ	5310008807744	49181	36103	..NUT,PLAIN,HEXAGON	1
18	PAFZZ	4730016466445	80195	5251630	.PIPE ASSEMBLY	1
19	PAFZZ	4730015881996	80195	S213903	.COUPLING ASSEMBLY,QUICK DISCONNECT	2
20	PAFZZ	5340015854073	80195	6200884	.PLUG,PROTECTIVE,DUST	2
21	PAFZZ	3120015885497	80195	6001724	.BUSHING,SLEEVE	4
22	MFFZZ		80195	5252293	.ROPE,WIRE (MAKE FROM P/N M83420/2-002, CUT TO LENGTH)	2
23	PAFZZ	5310015092488	81349	M45913/3-6CG8C	.NUT,SELF-LOCKING,HEXAGON	16
24	PAFZZ	5310015913820	80195	0446363	.WASHER,FLAT	32
25	PAFZZ	4710016324551	80195	5251605	.PIPE,METALLIC (PIPE ASSEMBLY)	1
26	PAFZZ	5305016326882	80195	0180137-CR	.SCREW,HEXAGON (BOLT)	16
27	PAFZZ	4730010756960	82796	92008302	.NIPPLE,PIPE	1
28	PAFZZ	4730015844590	39428	4464K37	.ELBOW,PIPE	1
29	PAFZZ	4730016466441	80195	5251602	.PIPE,BOTTOM LOAD,AFTER VALVE	2
30	PAFZZ	4730015971230	3HMC9	20360	.COUPLING,PIPE (INCLUDES TOP AND BOTTOM HALF)	1
31	PAFZZ	5310015899667	80195	6002390	..NUT,PLAIN,EXTENDED WASHER,HEXAGON	2
32	PCFZZ	5330015955484	3HMC9	10140	..GASKET (SLIDE)	1
33	PAFZZ	5305016452437	80195	6002389	..SCREW,CAP,HEXAGON HEAD (BOLT)	2
34	PAFZZ	4730001150452	79318	F417	.COUPLING HALF,QUICK (ADAPTER,BOTTOM LOAD, INCLUDES CAP AND LANYARD)	1
35	PAFZZ	4730015971230	3HMC9	20360	COUPLING,PIPE (INCLUDES TOP AND BOTTOM HALF)	1
36	PAFZZ	5305016452437	80195	6002389	.SCREW,CAP,HEXAGON HEAD (BOLT)	2
37	PCFZZ	5330015955484	3HMC9	10140	.GASKET (SLIDE)	1
38	PAFZZ	5310015899667	80195	6002390	.NUT,PLAIN,EXTENDED WASHER,HEXAGON	2
39	PAFZZ	5305015294402	2V507	92865A540	SCREW,CAP,HEXAGON HEAD (BOLT)	4
40	PAFZZ	5310015316758	39428	90108A413	WASHER,FLAT	8
41	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	5
42	PAFZZ	5305015048942	39428	92865A626	SCREW,CAP,HEXAGON HEAD (BOLT)	4
43	PAFZZ	5340015964300	80195	5251610	BRACKET,MOUNTING	2
44	PAFZZ	5340015928254	80195	5250885	STRAP,RETAINING	3

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
45	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	4
46	PAFZZ	4730015955924	80195	6603289	ADAPTER,STRAIGHT,PIPE (INCLUDES COMPRESSION FITTINGS)	1
47	PAFZZ	5975014608991	39428	3225T23	HANGER,CABLE	4
48	PAFZZ	4730015959515	80195	6603288	ELBOW,PIPE TO TUBE (INCLUDES COMPRESSION FITTINGS)	1
49	MFFZZ		80195	5252385	TUBE,NYLON,CLEAR (MAKE FROM P/N PFT-6B-BLU,CUT TO LENGTH)	1

END OF FIGURE

FIELD MAINTENANCE

VAPOR RECOVERY PIPING ASSEMBLY

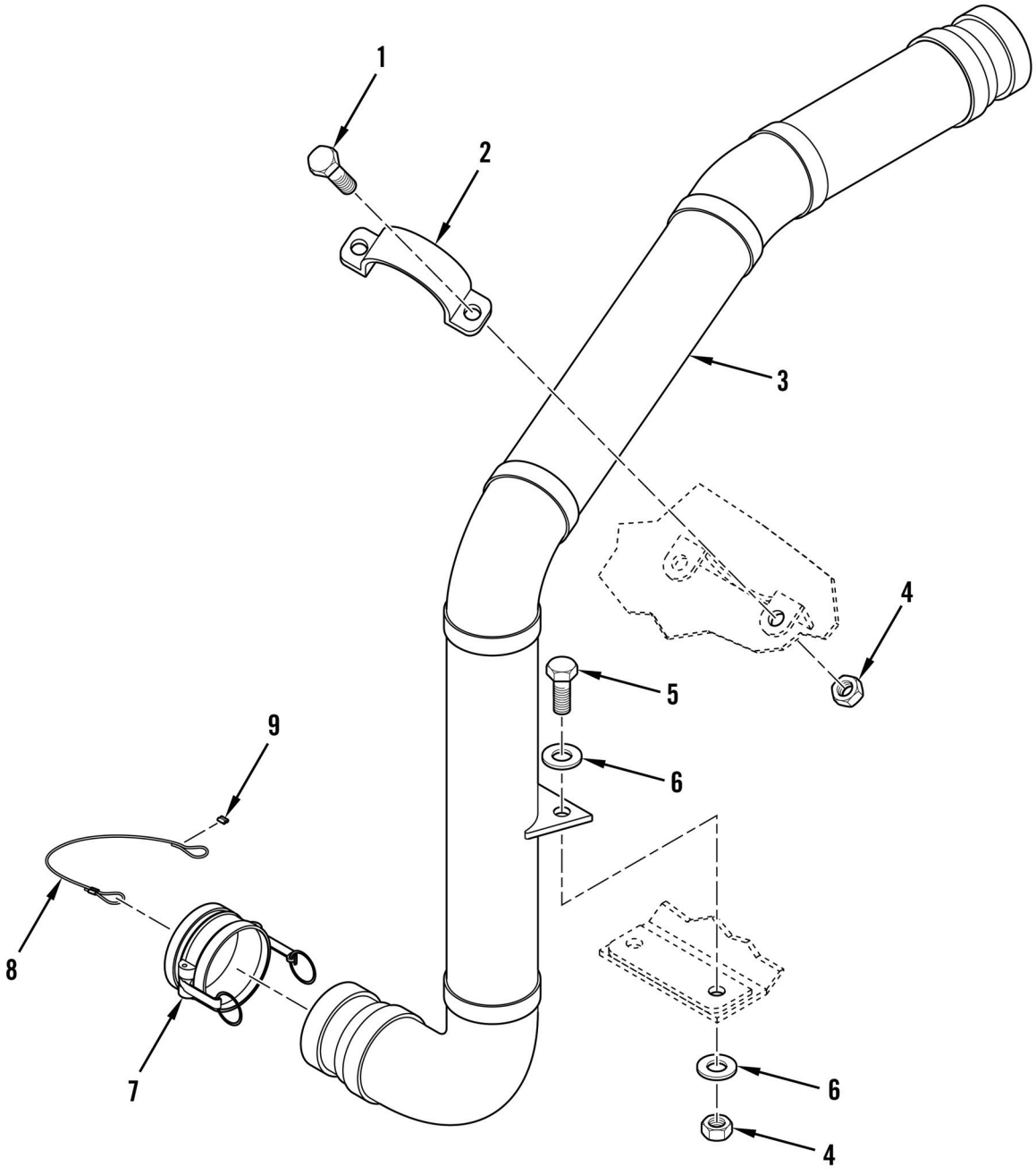


Figure 34. Vapor Recovery Piping Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 25	
					FIG. 34 VAPOR RECOVERY PIPING ASSEMBLY	
1	PAFZZ	5305015048942	39428	92865A626	SCREW,CAP,HEXAGON HEAD (BOLT)	2
2	PAFZZ	5340015844607	80195	5251189	STRAP,RETAINING	1
3	PAFZZ	4710015956008	80195	5250870	PIPE,METALLIC	1
4	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	4
5	PAFZZ	5305015955944	80195	0180122	SCREW,CAP,HEXAGON HEAD (BOLT)	2
6	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	4
7	PAFZZ	4730006406156	58536	AA59326IX-9	CAP,QUICK DISCONNECT	1
8	MFFZZ		80195	5252293	ROPE,WIRE (MAKE FROM P/N M83420/2-002, CUT TO LENGTH)	1
9	PAFZZ	3120015885497	80195	6001724	BUSHING,SLEEVE	2
					END OF FIGURE	

FIELD MAINTENANCE

V2 VALVE

5
6 AND 7

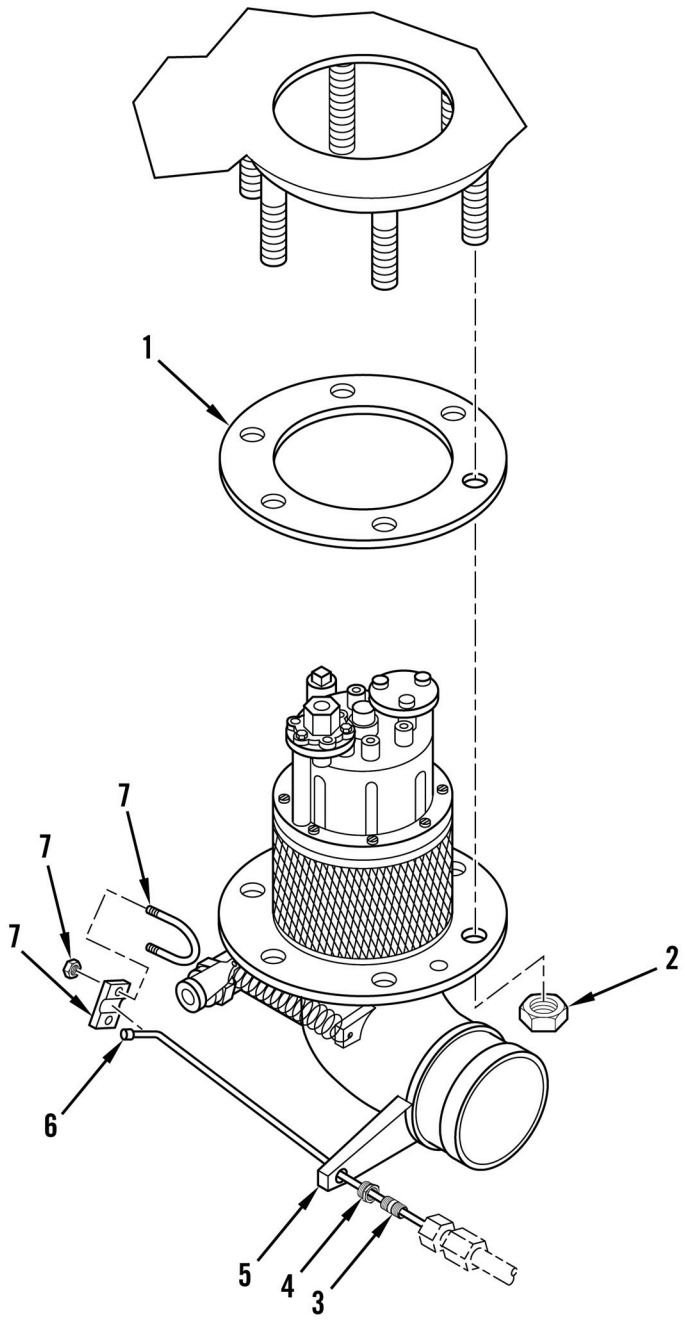


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Figure 35. V2 Valve.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 26	
					FIG. 35 V2 VALVE	
1	PCFZZ		13226	G15181CB	GASKET	1
2	PAFZZ	5310016050886	39428	95065A191	NUT,SELF-LOCKING,HEXAGON	6
3	PAFZZ	4730013205320	39428	4830K111	NIPPLE,PIPE	1
4	PAFZZ	5365015853248	39428	4464K261	BUSHING,MACHINE THREAD	1
5	PAFFF	2910015928556	79318	F660AC	VALVE,FUEL SYSTEM	1
6	PAFZZ	3120015885497	39428	3936T14	.BUSHING,SLEEVE	1
7	PAFZZ	5306010579492	73634	20910	.BOLT,U (INCLUDES TWO-PIECE CLAMP WITH HARDWARE)	1
					END OF FIGURE	

FIELD MAINTENANCE

V1 VALVE

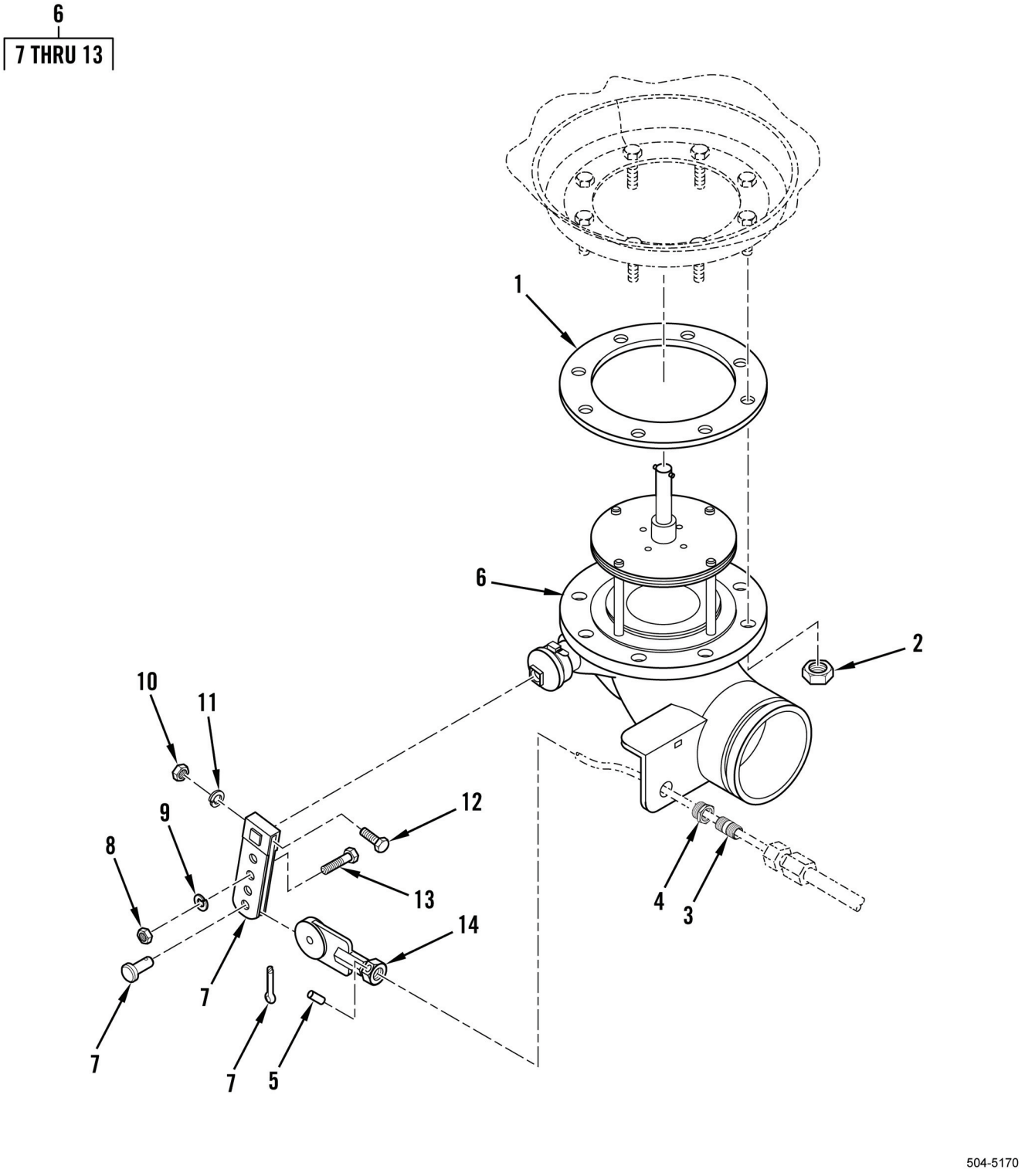

Figure 36. V1 Valve.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 27	
					FIG. 36 V1 VALVE	
1	PCFZZ	5330012877316	13226	G15266CB	GASKET	1
2	PAFZZ	5310016050886	39428	95065A191	NUT,SELF-LOCKING,HEXAGON	8
3	PAFZZ	4730013205320	39428	4830K111	NIPPLE,PIPE	1
4	PAFZZ	5365015853248	39428	4464K261	BUSHING,MACHINE THREAD	1
5	PAFZZ	3120015885497	39428	3936T14	BUSHING,SLEEVE	1
6	PAFZZ	4820015846724	13226	EV46458ALTS	VALVE,EMERGENCY (V1 VALVE, EMERGENCY 4 IN.)	1
7	PAFZZ	3040014853120	13226	10587EY	.LEVER,REMOTE CONTROL (INCLUDES PIN AND COTTER PIN)	1
8	PAFZZ	5310000881251	81349	M45913/1-4CG5C	.NUT,SELF-LOCKING,HEXAGON	1
9	PAFZZ	5310015247656	0UJB5	MIL-001-190	.WASHER,LOCK	1
10	PAFZZ	5310015108446	13226	9Q5806	.NUT,SELF-LOCKING,HEXAGON	1
11	PAFZZ	5310010519649	13226	9Q5845	.WASHER,LOCK	1
12	PAFZZ	5305000712509	80204	B1821BH025C150N	.SCREW CAP,HEXAGON HEAD (BOLT)	1
13	PAFZZ	5306014429864	98255	SW30255-32	.BOLT,MACHINE	1
14	PAFZZ	5920015628032	13226	21050A	FUSE LINK,THERMAL (FUSIBLE LINK)	1
					END OF FIGURE	

FIELD MAINTENANCE

CONTROL LEVER ASSEMBLY (V1)

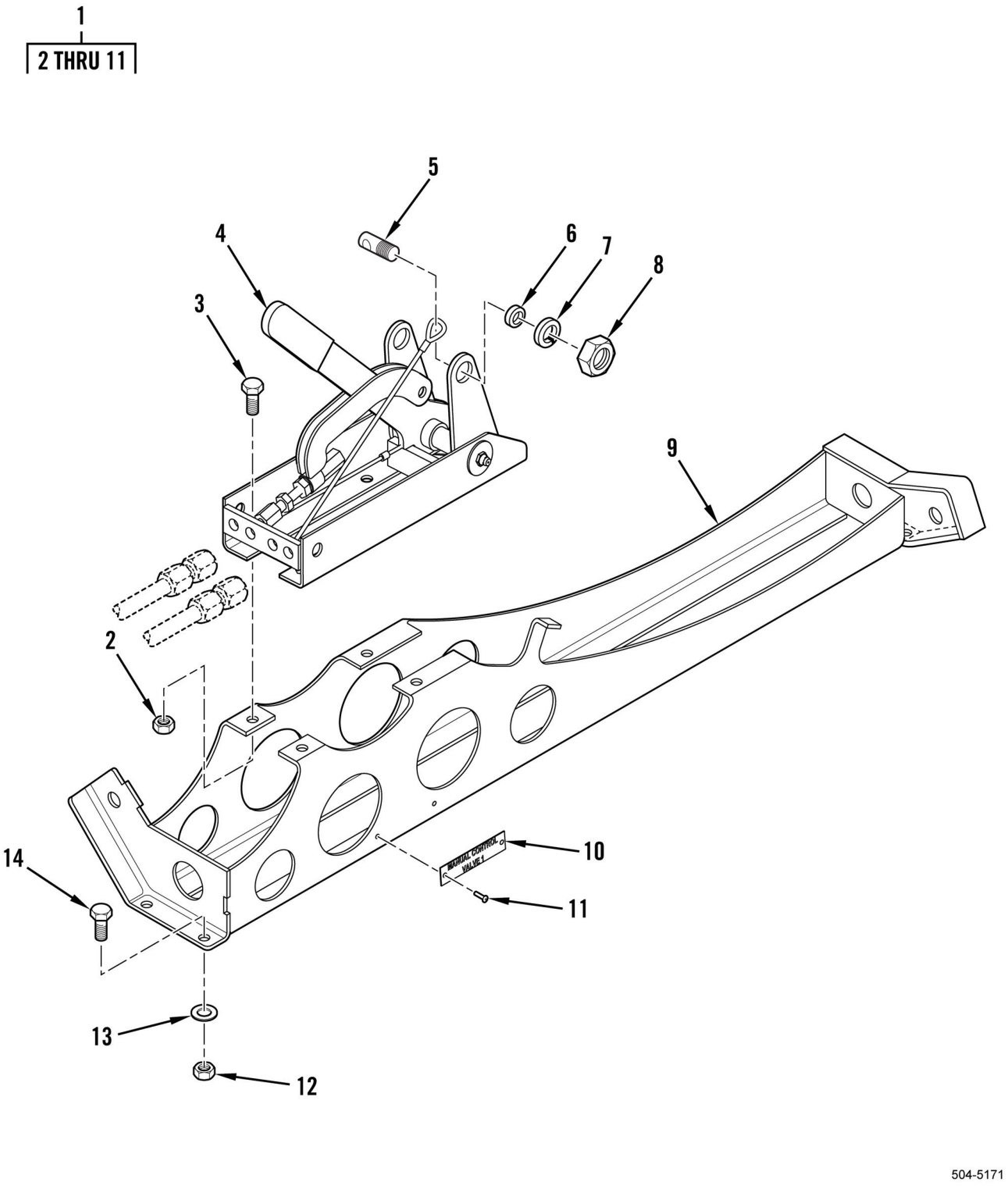

Figure 37. Control Lever Assembly (V1).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 28	
					FIG. 37 CONTROL LEVER ASSEMBLY (V1)	
1	PAFFF	3040015928249	80195	5251089	LEVER ASSEMBLY,MANUAL CONTROL	1
2	PAFZZ	5310000881251	81349	M45913/1-4CG5C	.NUT,SELF-LOCKING,HEXAGON	4
3	PAFZZ	5305015294402	2V507	92865A540	.SCREW,CAP,HEXAGON HEAD (BOLT)	4
4	PAFZZ	3040015852486	13226	OP9001SL	.LEVER ASSEMBLY,MANUAL CONTROL (OPERATOR MECHANICAL)	1
5	PAFZZ	5340015965429	13226	19622SL	.CLAMP,LOOP	1
6	PAFZZ	5365015965426	13226	19167SL	.BUSHING,SLEEVE	1
7	PAFZZ	5310015965439	13226	9Q5908	.WASHER,LOCK	1
8	PAFZZ	5310014852086	13226	9Q5909	.NUT,PLAIN,HEXAGON	1
9	PAFZZ	3040015956023	80195	5250841	.LEVER,REMOTE CONTROL	1
10	PAFZZ	9905015867038	80195	5251038	.PLATE,INSTRUCTION	1
11	PAFZZ	5320015846190	39428	97525A615	.RIVET,BLIND	2
12	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	4
13	PAFZZ	5310015316758	39428	90108A413	WASHER,FLAT	4
14	PAFZZ	5305015294402	2V507	92865A540	SCREW,CAP,HEXAGON HEAD (BOLT)	4
					END OF FIGURE	

FIELD MAINTENANCE

SIDE MECHANICAL OPERATOR CONTROL LEVER (V2)

2
3 THRU 6

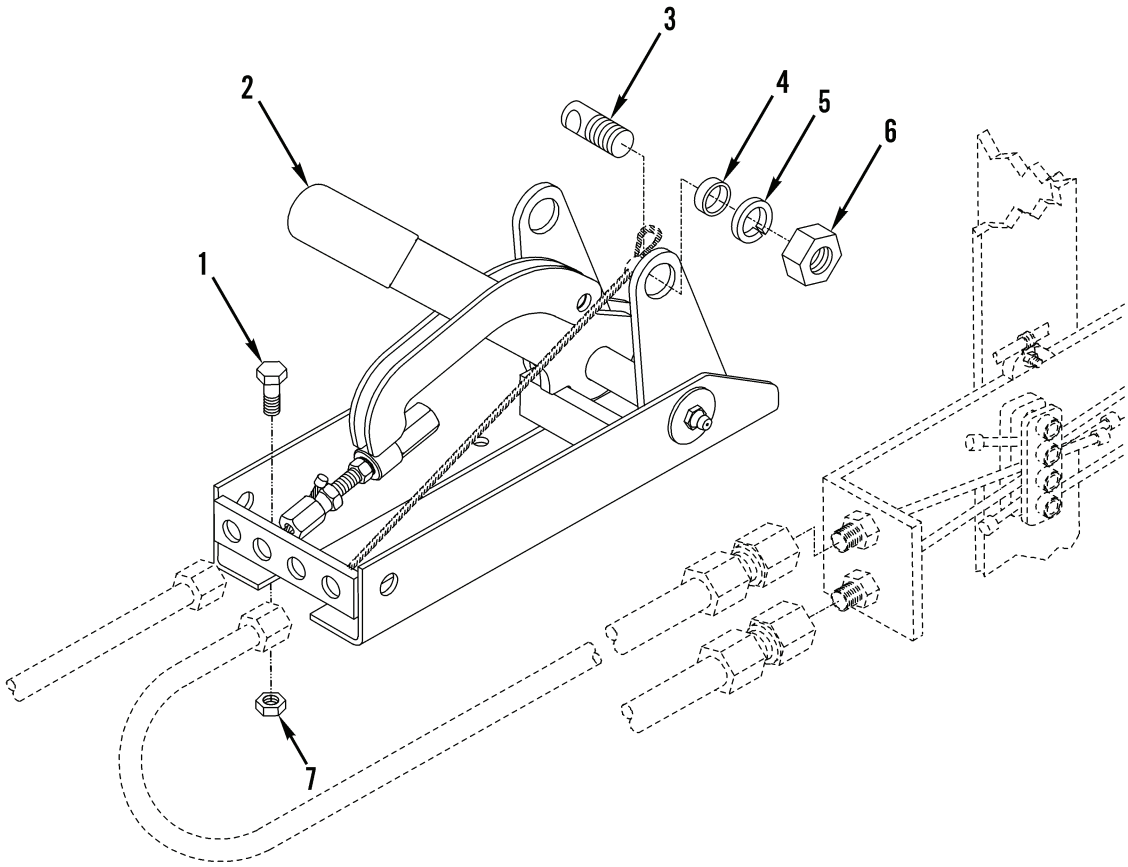

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Figure 38. Side Mechanical Operator Control Lever (V2).

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 29	
					FIG. 38 SIDE MECHANICAL OPERATOR CONTROL LEVER (V2)	
1	PAFZZ	5305015294402	2V507	92865A540	SCREW,CAP,HEXAGON HEAD (BOLT)	4
2	PAFZZ	3040015852486	13226	OP9001SL	LEVER ASSEMBLY,MANUAL CONTROL (OPERATOR MECHANICAL)	1
3	PAFZZ	5340015965429	13226	19622SL	.CLAMP,LOOP	1
4	PAFZZ	5365015965426	13226	19167SL	.BUSHING,SLEEVE	1
5	PAFZZ	5310015965439	13226	9Q5908	.WASHER,LOCK	1
6	PAFZZ	5310014852086	13226	9Q5909	.NUT,PLAIN,HEXAGON	1
7	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	4
					END OF FIGURE	

FIELD MAINTENANCE

CABLE GUIDES

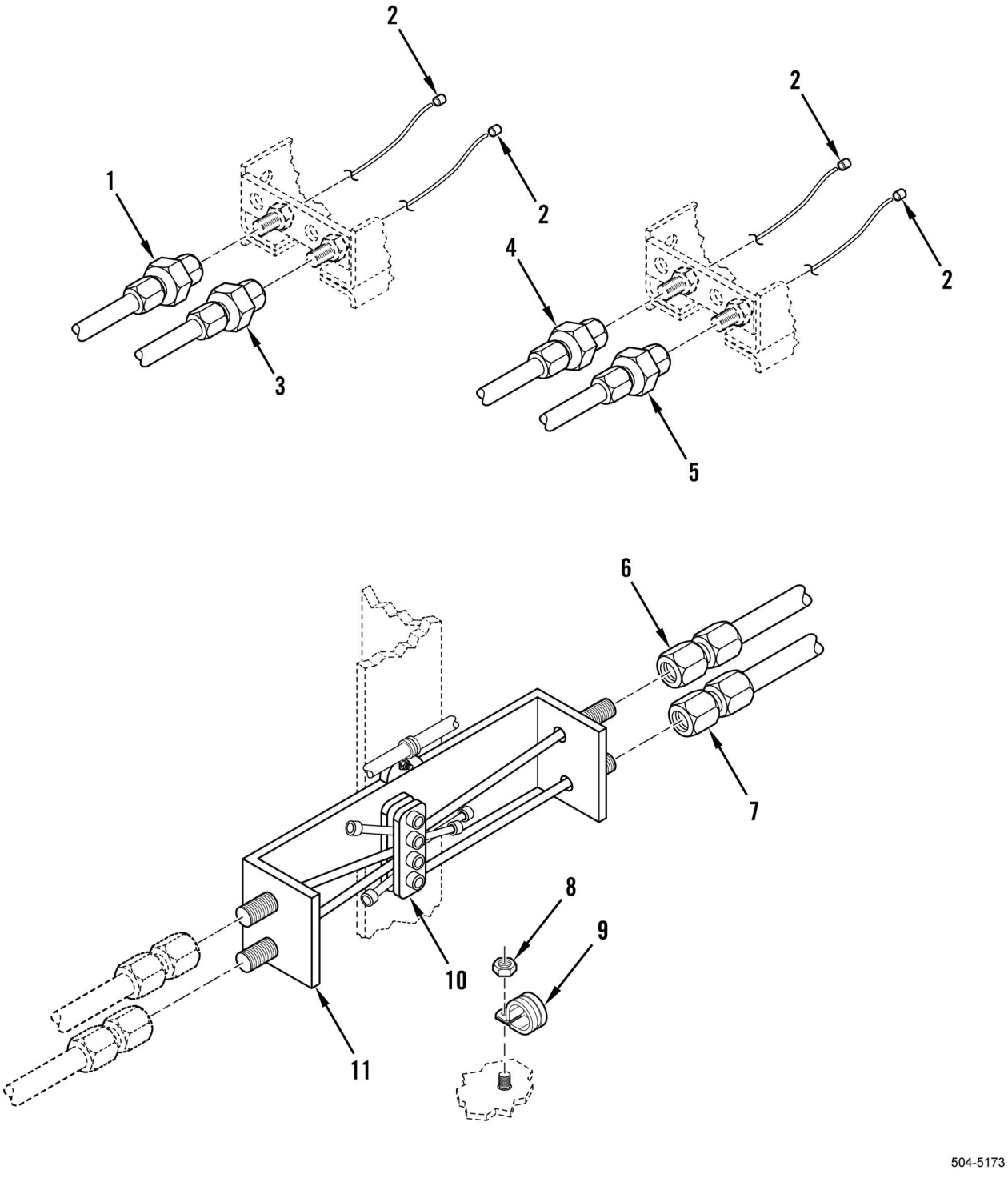

Figure 39. Cable Guides.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 30	
					FIG. 39 CABLE GUIDES	
1	PAFZZ	2590015929832	80195	5251566	CABLE AND CONDUIT ASSEMBLY	1
2	PAFZZ	3120015885497	80195	6001724	BUSHING,SLEEVE	4
3	PAFZZ	2530015960944	80195	5251569	CABLE AND CONDUIT ASSEMBLY (CABLE GUIDE,EMERGENCY VALVE)	1
4	PAFZZ	4710015852511	80195	5251581	TUBE ASSEMBLY, METAL (SIDE LOAD)	1
5	PAFZZ	4710015844065	80195	5251578	TUBE ASSEMBLY,METAL (SIDE STOP)	1
6	PAFZZ		80195	5251572	ASSEMBLY,CABLE GUIDE (LEFT HAND ASSEMBLY)	1
7	PAFZZ	2590015960953	80195	5251575	CONTROL ASSEMBLY,PUMP(RIGHT HAND ASSEMBLY)	1
8	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	9
9	PAFZZ	5340015123422	39428	3225T24	CLAMP,LOOP	9
10	PAFZZ	5935015839477	80195	5251400	CLAMP,CABLE,ELECTRICAL CONNECTOR	1
11	PAFZZ	5975015844214	80195	5251368	HANGER,CABLE	1
					END OF FIGURE	

FIELD MAINTENANCE

EMERGENCY STOP CABLE GUIDES

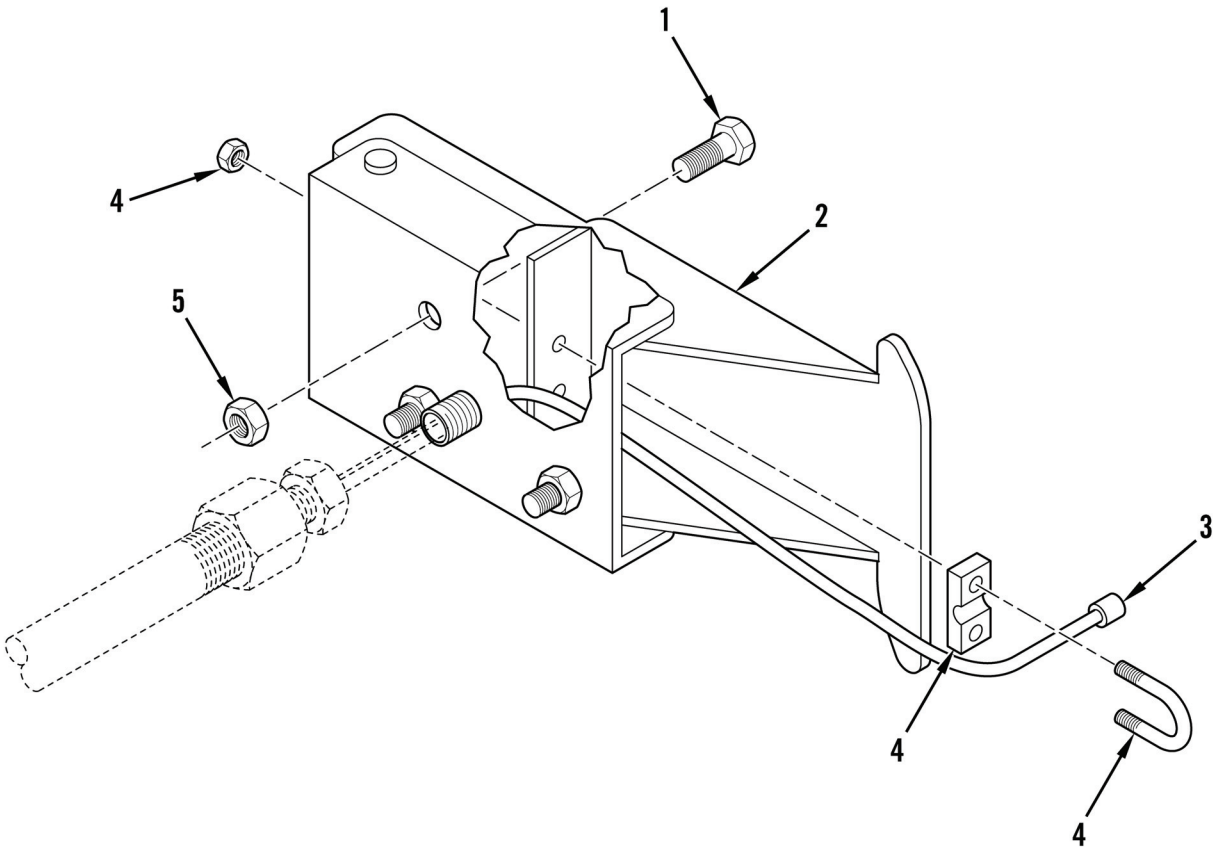

Figure 40. Emergency Stop Cable Guides.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 30	
					GROUP 3003	
					FIG. 40 EMERGENCY STOP CABLE GUIDES	
1	PAFZZ	5306015528240	39428	92865A938	BOLT,MACHINE	6
2	PBFZZ	5340015959112	80195	5251405	LEVER, MANUAL CONTROL	2
3	PAFZZ	3120015885497	39428	3936T14	BUSHING,SLEEVE	1
4	PAFZZ	5306010579492	73634	20910	BOLT,U (INCLUDES TWO-PIECE CLAMP WITH HARDWARE).....	1
5	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON.....	6
					END OF FIGURE	

FIELD MAINTENANCE

COMPRESSION SPRINGS

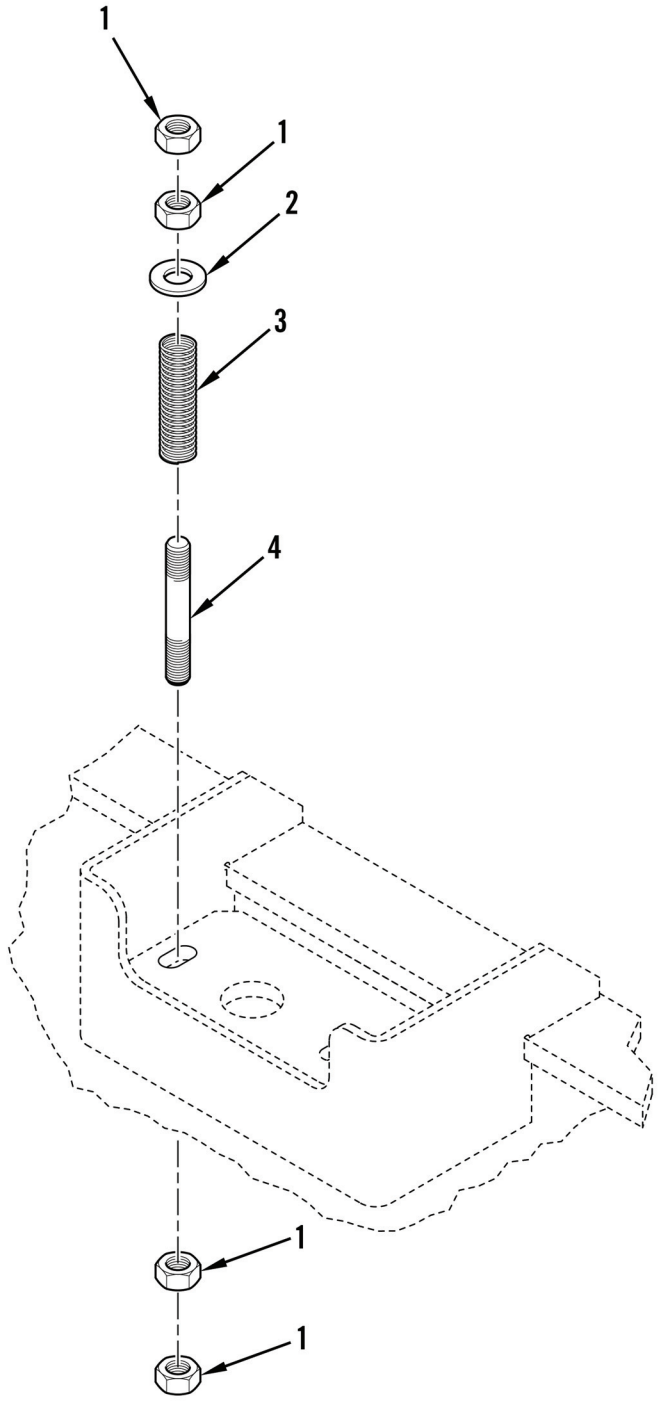

Figure 41. Compression Springs.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 31	
					FIG. 41 COMPRESSION SPRINGS	
1	PAFZZ		80195	9413948	NUT,SELF-LOCKING,HEXAGON.....	48
2	PAFZZ	5310014812060	19204	RIA149111-4	WASHER,FLAT.....	12
3	PAFZZ	5360015408782	80195	6001225	SPRING,HELICAL,COMPRESSION.....	12
4	PAFZZ	5307015928620	80195	3311945	STUD,PLAIN.....	12
					END OF FIGURE	

FIELD MAINTENANCE
MANHOLE COVER/TRANSPORTER COVER

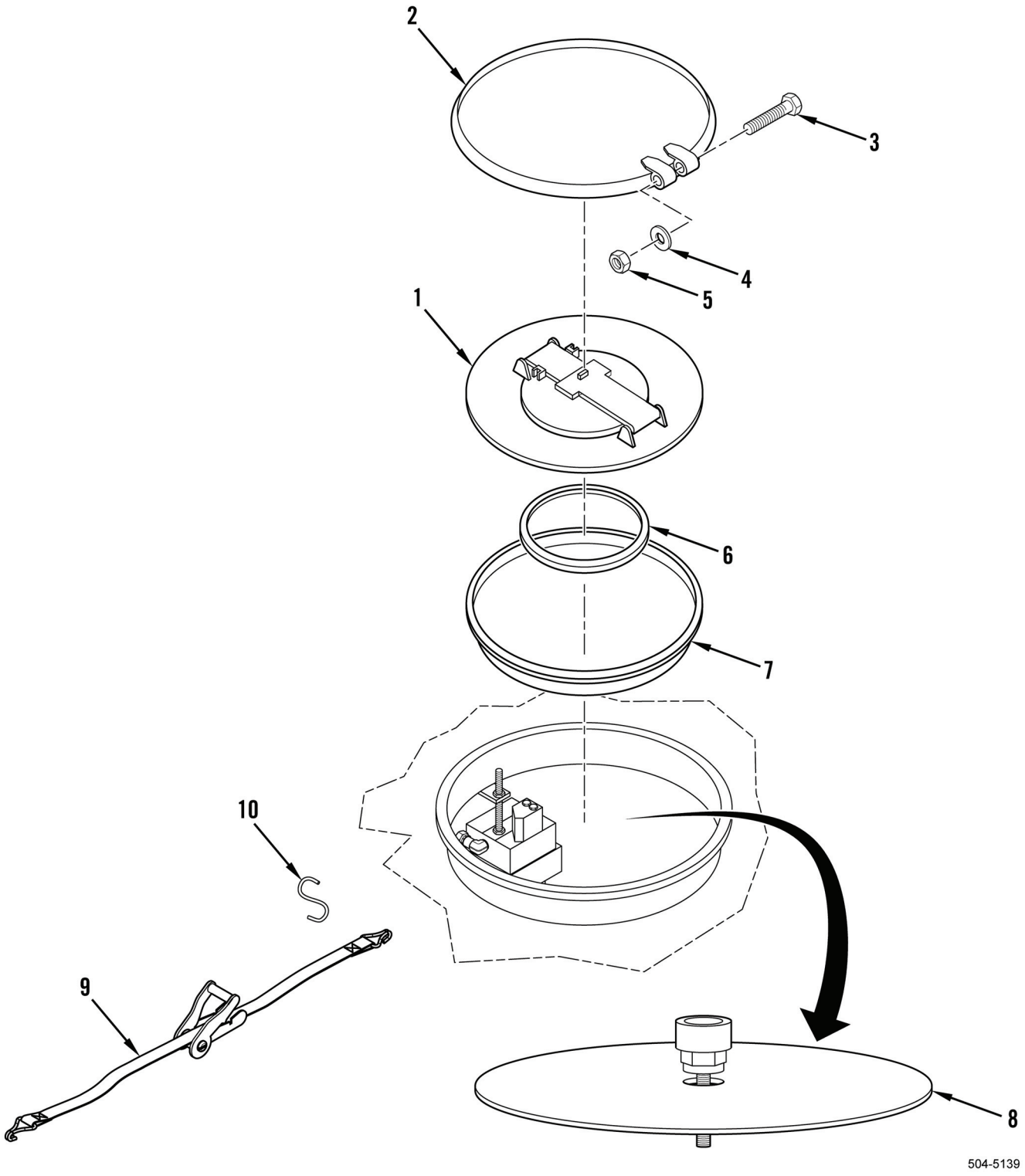

Figure 42. Manhole Cover/Transporter Cover.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 33	
					FIG. 42 MANHOLE COVER/TRANSPORTER COVER	
1	PBFZZ	2510015842452	80195	6603764	COVER,MANHOLE (20 IN.)	1
2	PAFZZ	5365001382158	13226	3036SL	.RING,CLAMPING	1
3	PAFZZ	5306010775119	13226	3029SL	.BOLT,MACHINE	1
4	PAFZZ	5310010776773	13226	3031-SL	.WASHER	1
5	PAFZZ	5310007320558	96906	MS51967-8	.NUT,PLAIN,HEXAGON	1
6	PCFZZ	5330010242311	13226	3119BN	.PACKING,PREFORMED	1
7	PCFZZ	5330011341986	13226	3560BN	.GASKET	1
8	PAFZZ	2040015827522	80195	5251389	COVER,MANHOLE (VENTED)	1
9	PAFZZ	5340015917679	80195	6001716	STRAP,RETAINING	1
10	PAFZZ	4030002811683	39428	9381T52	HOOK,CHAIN,S	1
					END OF FIGURE	

FIELD MAINTENANCE

HOSE TROUGH ASSEMBLY

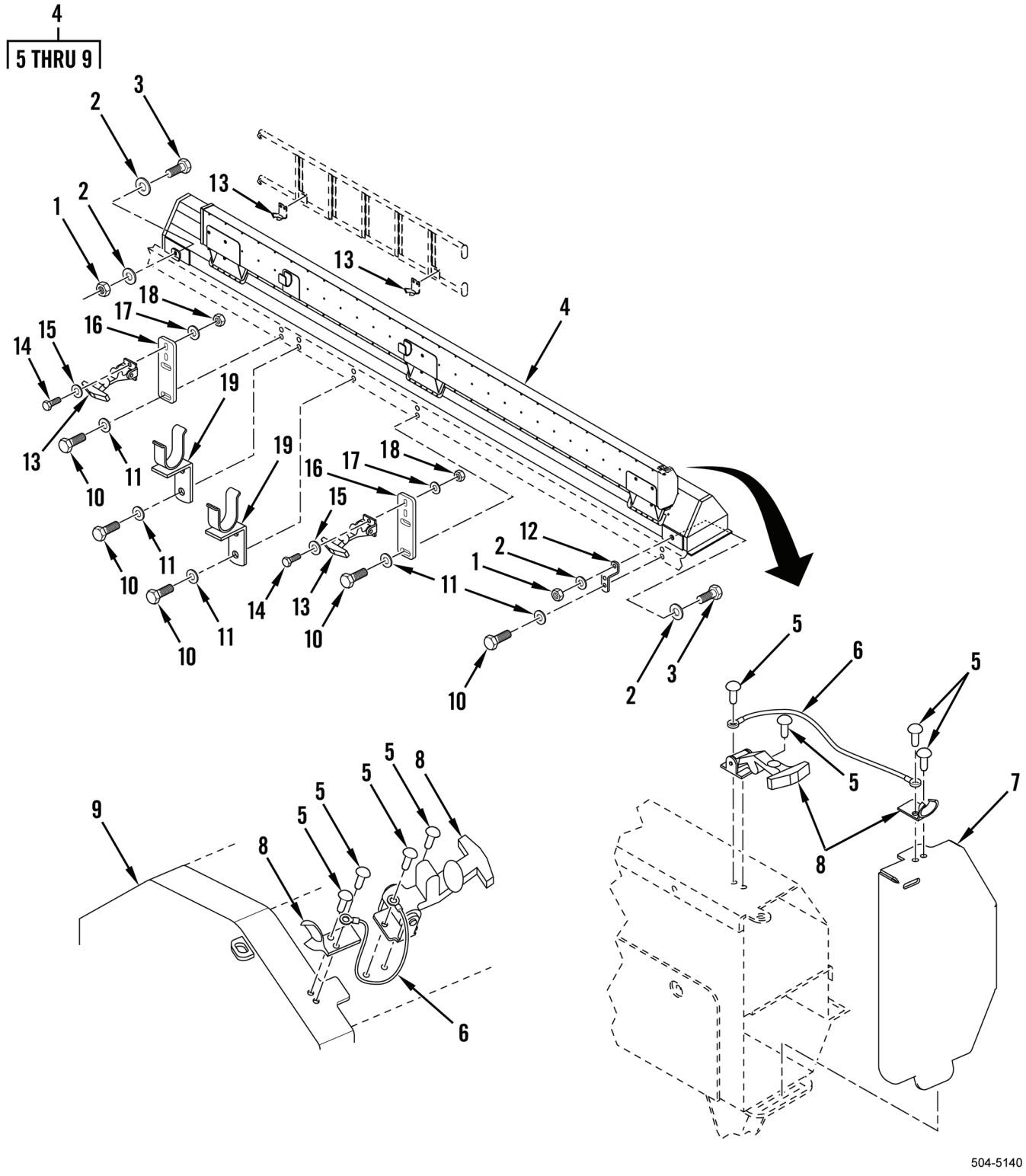

Figure 43. Hose Trough Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 34	
					FIG. 43 HOSE TROUGH ASSEMBLY	
1	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON	4
2	PAFZZ	5310010831540	39428	98026A031	WASHER,FLAT	4
3	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,SOCKET HEXAGON (BOLT)	2
4	PDFFF	5340016456941	80195	5251737	HOSE ASSEMBLY, METALLIC (HOSE TROUGH ASSEMBLY)	1
5	PAFZZ	5320015841679	94222	38-106-04-16	.RIVET,BLIND (3/16 IN., 0.078 TO 0.171 IN. THICKNESS)	20
6	PAFZZ		80195	6001503	.LANYARD	2
7	PAFZZ	5340015960352	80195	5251726	.COVER,ACCESS	1
8	PAFZZ	5340015886478	80195	6001161	.LATCH,RIM (INCLUDES LATCH AND CATCH)	5
9	PAFZZ	4010015846194	80195	5251292	.DOOR,TROUGH	2
10	PAFZZ	5305016326509	80195	0180073-CR	SCREW,CAP,HEXAGON HEAD (BOLT)	10
11	PAFZZ	5310015913820	80195	0446363	WASHER,FLAT	10
12	PAFZZ	5340015885019	80195	5251701	BRACKET,DOUBLE ANGLE	1
13	PAFZZ	5340014241221	94222	37-20-086-10	CATCH,CLAMPING (INCLUDES LATCH AND CATCH)	2
14	PAFZZ	5305011942588	39428	90283A829	SCREW,MACHINE	8
15	PAFZZ	5310016326508	80195	0120391-CR	WASHER,FLAT	4
16	XBFZZ		80195	5251748	PLATE,MOUNTING (LADDER STOWAGE)	2
17	PAFZZ	5310010836490	80195	0120217	WASHER,LOCK	8
18	PAFZZ	5310010829526	80195	0120614	NUT,PLAIN,HEXAGON	8
19	PAFZZ	2590015939503	80195	5251738	BRACKET,VEHICULAR COMPONENTS (LADDER STOWAGE)	2
					END OF FIGURE	

FIELD MAINTENANCE

DISCHARGE HOSE

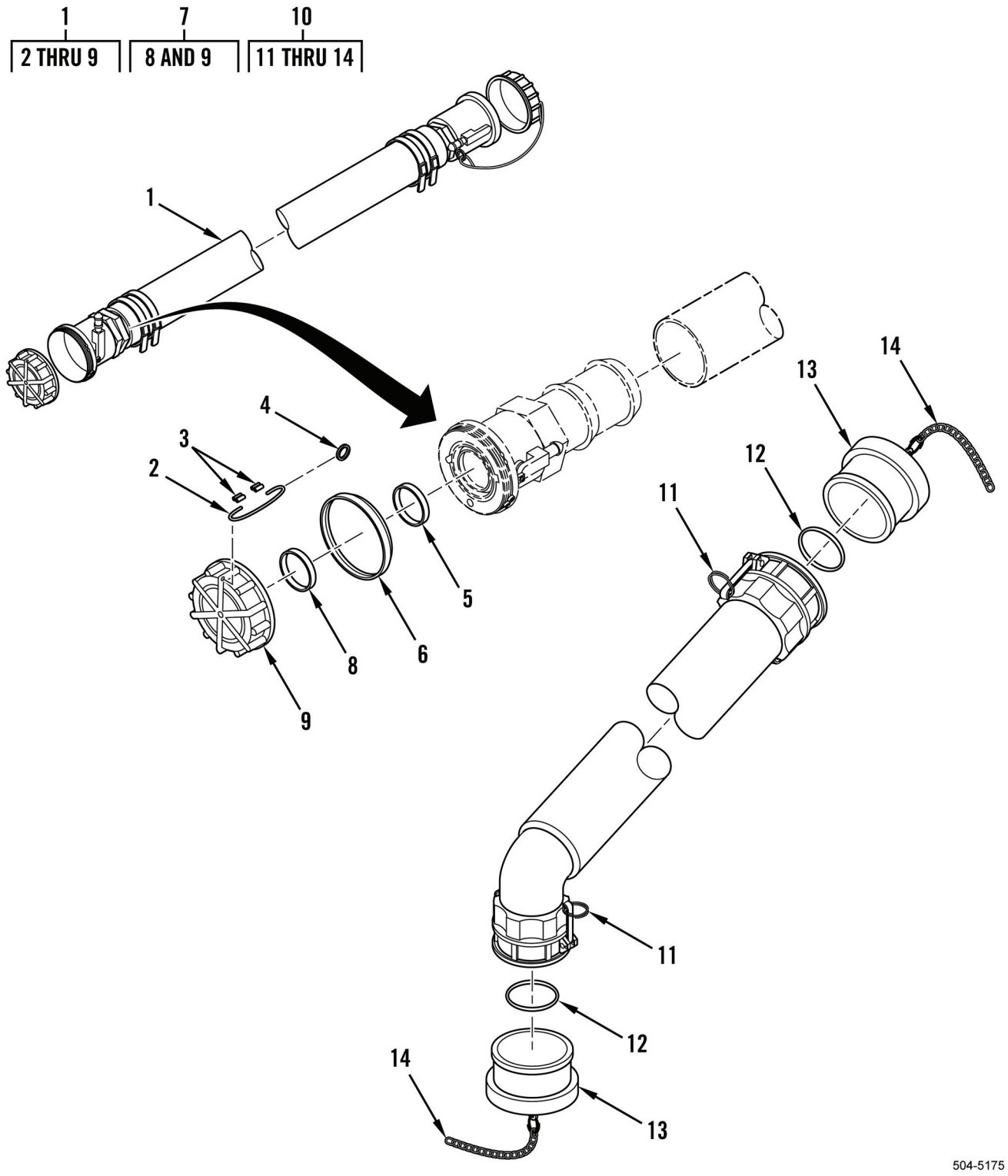

Figure 44. Discharge Hose.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 35	
					GROUP 3501	
					FIG. 44 DISCHARGE HOSE	
1	PAFFF	4720015827881	80195	5251747	HOSE,NONMETALLIC (DISCHARGE 2 IN. X 13 FT 2 IN.)	2
2	PAFZZ	4010005756233	81349	M83420/4-010	.ROPE,WIRE	1
3	PAFZZ	4030015167545	53711	5793250	.SWAGING SLEEVE,WIRE ROPE	2
4	PAFZZ	5340015150537	39428	86805T38	.HOLDER,KEY (SPLIT RING)	1
5	PCFZZ	5330016413634	61125	RJ0009	.SEAL,INTERFACE	1
6	PCCZZ	2510016413811	61125	RJ0001	.CAP,BUMPER	1
7	PAFFF	5340016452593	61125	RJA1003	.CAP,PROTECTIVE,DUST AND MOISTURE SEAL (DUST CAP)	1
8	PCCZZ	5330016413634	61125	RJ0009	..SEAL,INTERFACE	1
9	PAFZZ	4730016452589	61125	RJ0015	..CAP,QUICK DISCONNECT	1
10	PAFZZ	4720015827975	80195	6001908	HOSE ASSEMBLY,NONMETALLIC (DISCHARGE 3 X 3 FT X 11.5 IN.)	1
11	PAFZZ	5340015150537	39428	86805T38	.HOLDER,KEY (SPLIT RING)	6
12	PCFZZ	5330000889166	58536	AA59326-G8	.GASKET	2
13	PAFZZ	4730009290787	58536	AA59326/10-8-A	.CAP,QUICK DISCONNECT	2
14	PAFZZ	4010015264895	39428	3610T32	.CHAIN,WELDLESS	2
					END OF FIGURE	

FIELD MAINTENANCE

SUCTION HOSE

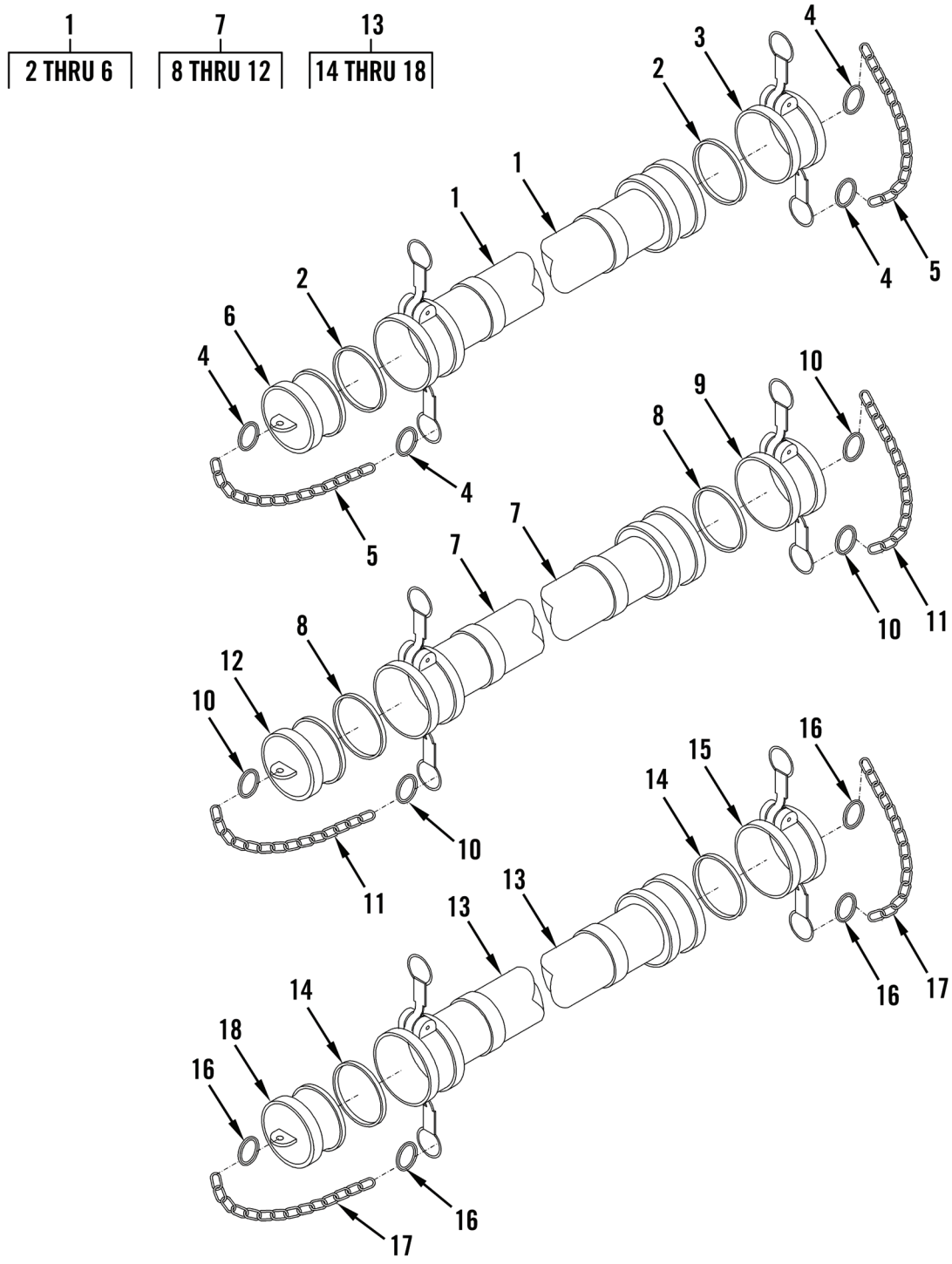

Figure 45. Suction Hose.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 35	
					GROUP 3502	
					FIG. 45 SUCTION HOSE	
1	PAFZZ	4720015827865	80195	6001538	HOSE ASSEMBLY,NONMETALLIC (4 IN. X 15 FT)	2
2	PCCZZ	5330008994509	58536	AA59326-G-9	.GASKET	2
3	PAFZZ	4730006406156	58536	AA59326IX-9	.CAP,QUICK DISCONNECT	1
4	PAFZZ	5340015150537	39428	86805T38	.HOLDER,KEY (SPLIT RING)	4
5	PAFZZ	4010015264895	39428	3610T32	.CHAIN,WELDLESS	2
6	PAFZZ	4730015436993	33813	40W	.PLUG,QUICK DISCONNECT	1
7	PAFZZ	4720015828153	80195	6001882	HOSE ASSEMBLY,NONMETALLIC (4 IN. X 8 FT 3 IN.)	1
8	PCFZZ	5330008994509	58536	AA59326-G-9	.GASKET	2
9	PAFZZ	4730006406156	58536	AA59326IX-9	.CAP,QUICK DISCONNECT	1
10	PAFZZ	5340015150537	39428	86805T38	.HOLDER,KEY (SPLIT RING)	4
11	PAFZZ	4010015264895	39428	3610T32	.CHAIN,WELDLESS	2
12	PAFZZ	4730015436993	33813	40W	.PLUG,QUICK DISCONNECT	1
13	PAFZZ	4720015828171	80195	6001903	HOSE ASSEMBLY,NONMETALLIC (4 IN. X 6 FT 2 IN.)	1
14	PCFZZ	5330008994509	58536	AA59326-G-9	.GASKET	2
15	PAFZZ	4730006406156	58536	AA59326IX-9	.CAP,QUICK DISCONNECT	1
16	PAFZZ	5340015150537	39428	86805T38	.HOLDER,KEY (SPLIT RING)	4
17	PAFZZ	4010015264895	39428	3610T32	.CHAIN,WELDLESS	2
18	PAFZZ	4730015436993	33813	40W	.PLUG,QUICK DISCONNECT	1
					END OF FIGURE	

FIELD MAINTENANCE

CAMLOCK ADAPTER

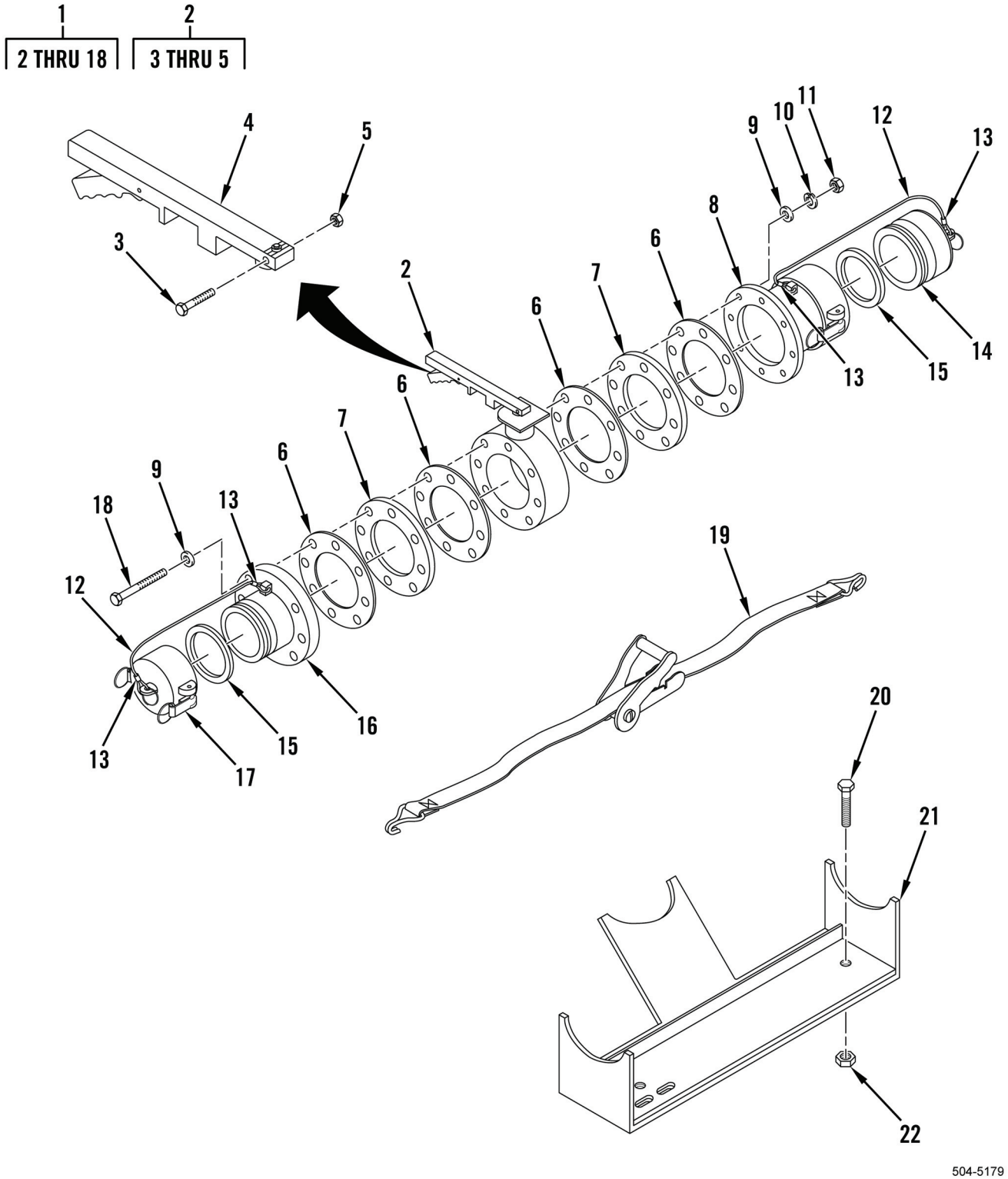

Figure 46. Camlock Adapter.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 35	
					GROUP 3503	
					FIG. 46 CAMLOCK ADAPTER	
1	PAFFF	4730015827846	80195	5251391	ADAPTER ASSEMBLY,VALVE (CAMLOCK ADAPTER).....	1
2	PAFZZ	4820015954236	11817	WD404 AL V	.VALVE, BUTTERFLY	1
3	PAFZZ	5305015047427	13226	9Q5884	..SCREW,CAP,HEXAGON HEAD (BOLT)	2
4	PAFZZ	5340015047309	13226	26284AL	..LEVER,MANUAL CONTROL.....	1
5	PAFZZ	5310008807744	49181	36103	..NUT,PLAIN,HEXAGON	1
6	PAFZZ	5330015845294	80195	6000065	.GASKET	4
7	PAFZZ	4730015841662	3HMC9	20189D	.ADAPTOR,FLANGE TUBE	2
8	PAFZZ	4730008405348	58536	AA59326/8-4-A-1	.COUPLING HALF, QUICK.....	1
9	PAFZZ	5310015913820	80195	0446363	.WASHER,FLAT.....	16
10	PAFZZ	5310006379541	65035	P49866-11	.WASHER,LOCK.....	8
11	PAFZZ	5310015092488	81349	M45913/3-6CG8C	.NUT,SELF-LOCKING,HEXAGON	8
12	MFFZZ		80195	5252293	.ROPE,WIRE (MAKE FROM P/N M83420/2-002, CUT TO LENGTH)	2
13	PAFZZ	3120015885497	80195	6001724	.BUSHING,SLEEVE	4
14	PAFZZ	5340015854073	80195	6200884	.PLUG,PROTECTIVE,DUST AND MOISTURE SEAL.....	1
15	PCFZZ	5330015877668	33813	5500240F	.GASKET	2
16	PAFZZ	4730016330796	72661	400-ALT-AL	.ADAPTER, FLANGE	1
17	PAFZZ	4730006406156	58536	AA59326IX-9	.CAP,QUICK DISCONNECT.....	1
18	PAFZZ	5305015918571	39428	91247A640	.SCREW,CAP,HEXAGON HEAD (BOLT)	8
19	PAFZZ	5340015917679	80195	6001716	STRAP, RETAINING (24 IN.).....	1
20	PAFZZ	5306015528240	39428	92865A938	BOLT,MACHINE	4
21	PAFZZ	5340015886741	80195	5251396	BRACKET,MOUNTING	1
22	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON.....	4
					END OF FIGURE	

FIELD MAINTENANCE

TEE ASSEMBLY

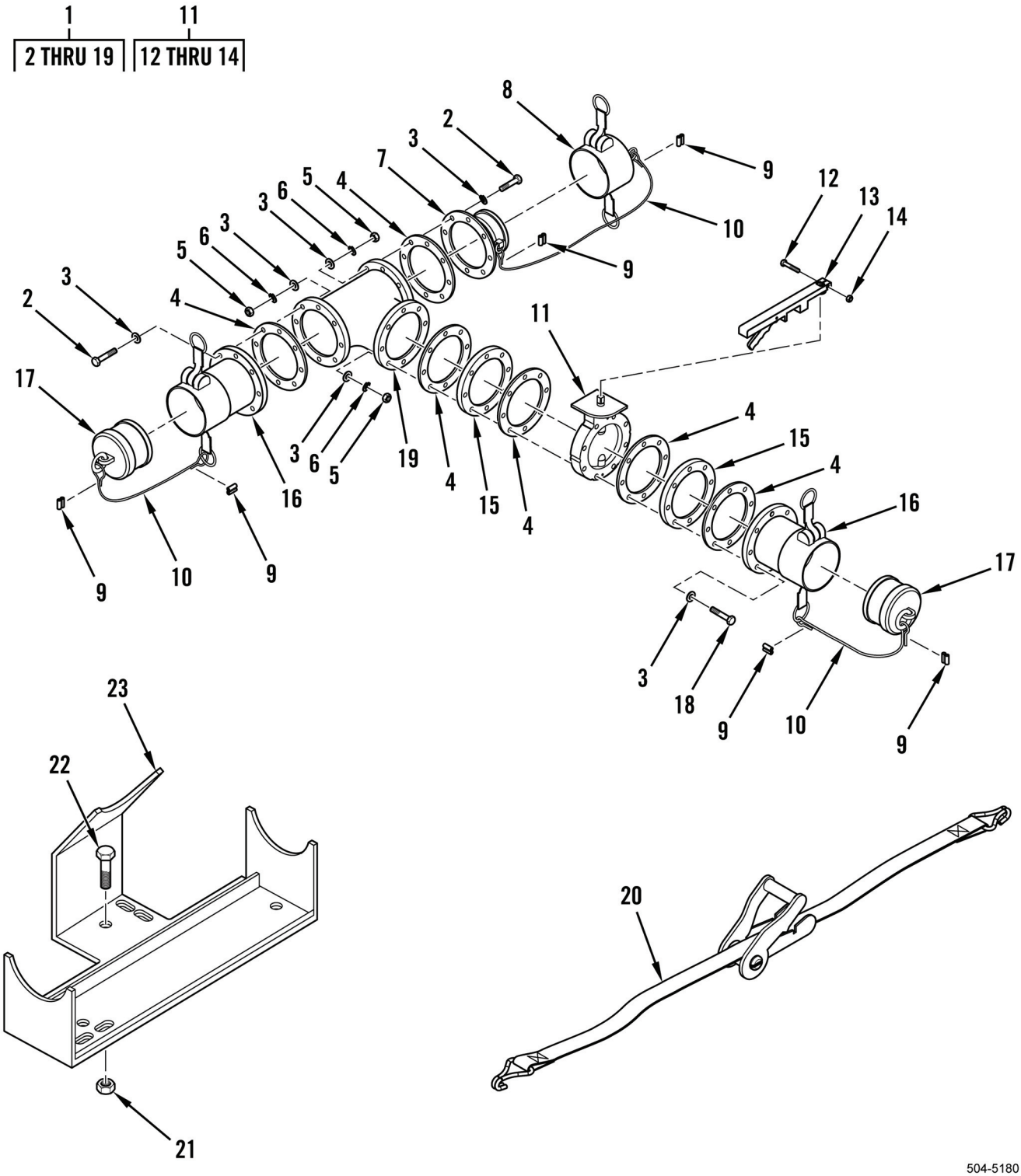

Figure 47. Tee Assembly.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 35	
					GROUP 3504	
					FIG. 47 TEE ASSEMBLY	
1	PAFFF	4730015827894	80195	5251206	TEE ASSEMBLY, FLANGE (QUICK DISCONNECT, 4 IN. CAMLOCK)	1
2	PAFZZ	5306011939197	39428	91247A628	.BOLT,MACHINE	16
3	PAFZZ	5310015913820	80195	0446363	.WASHER,FLAT	48
4	PAFZZ	5330015845294	80195	6000065	.GASKET	6
5	PAFZZ	5310015092488	81349	M45913/3-6CG8C	.NUT,SELF-LOCKING,HEXAGON	24
6	PAFZZ	5310006379541	65035	P49866-11	.WASHER,LOCK	24
7	PAFZZ	4730016330796	72661	400-ALT-AL	.ADAPTER,FLANGE (STRAIGHT,FLANGE TO HOSE)	1
8	PAFZZ	4730006406156	58536	AA59326IX-9	.CAP,QUICK DISCONNECT	1
9	PAFZZ	3120015885497	80195	6001724	.BUSHING,SLEEVE	6
10	MFFZZ		80195	5252293	.ROPE,WIRE (MAKE FROM P/N M83420/2-002, CUT TO LENGTH)	3
11	PAFZZ	4820015954236	11817	WD404 AL V	.VALVE,BUTTERFLY BETTS	1
12	PAFZZ	5305015047427	13226	9Q5884	..SCREW,CAP,HEXAGON HEAD	1
13	PAFZZ	5340015047309	13226	26284AL	..LEVER,MANUAL CONTROL	1
14	PAFZZ	5310008807744	49181	36103	..NUT,PLAIN,HEXAGON	1
15	PAFZZ	4730015841662	3HMC9	20189D	.ADAPTOR,FLANGE TUBE	2
16	PAFZZ	4730008405348	58536	AA59326/8-4-A-1	.COUPLING HALF,QUICK DISCONNECT	2
17	PAFZZ	5340015854073	80195	6200884	.PLUG,PROTECTIVE,DUST	2
18	PAFZZ	5305015918571	39428	91247A640	.SCREW,CAP,HEXAGON HEAD (BOLT)	8
19	PAFZZ	4730016427536	72661	400-TLT-AL	.TEE, TANK TRUCK (TEE)	1
20	PAFZZ	5340015917679	80195	6001716	STRAP, RETAINING	1
21	PAFZZ	5310000881251	81349	M45913/1-4CG5C	NUT,SELF-LOCKING,HEXAGON	3
22	PAFZZ	5305016326511	80195	0180120-CR	SCREW,CAP,SOCKET HEAD (BOLT)	3
23	PBFZZ	5340015964306	80195	5251102	BRACKET,MULTIPLE ANGLE	1
					END OF FIGURE	

FIELD MAINTENANCE

ISO RACK LADDERS

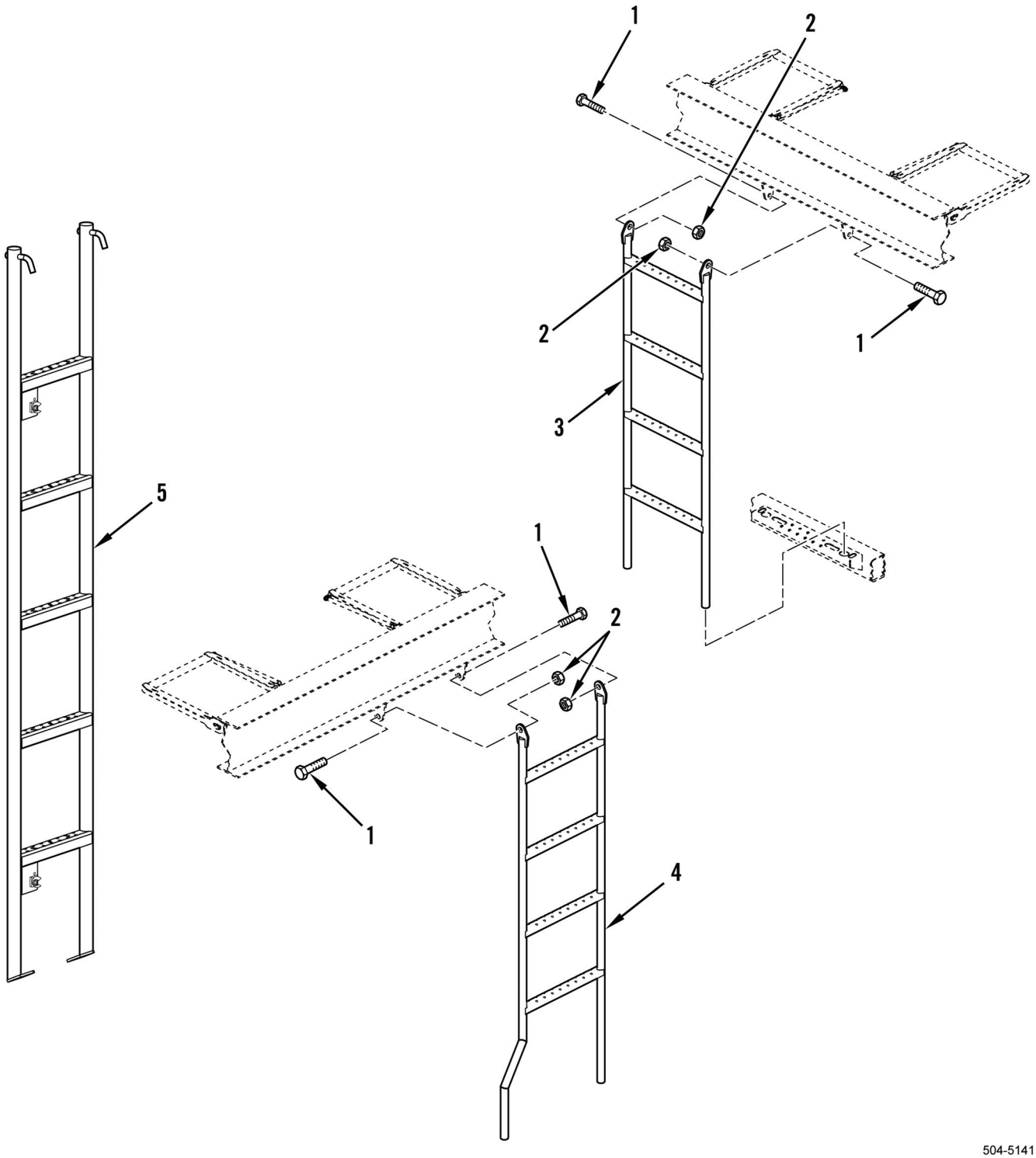

Figure 48. ISO Rack Ladders.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 36	
					FIG. 48 ISO RACK LADDERS	
1	PAFZZ	5305014519220	39428	92865A542	SCREW,CAP, HEXAGON HEAD (BOLT).....	4
2	PAFZZ	5310015092488	81349	M45913/3-6CG8C	NUT,SELF-LOCKING,HEXAGON.....	4
3	PAFZZ	5440015928245	80195	5250819	STEP,LADDER	1
4	PAFZZ	5440015928246	80195	5251675	STEP,LADDER (REAR).....	1
5	PAFZZ	5440015928244	80195	5251662	STEP,LADDER (STOWAGE).....	1
					END OF FIGURE	

FIELD MAINTENANCE

DATA PLATES

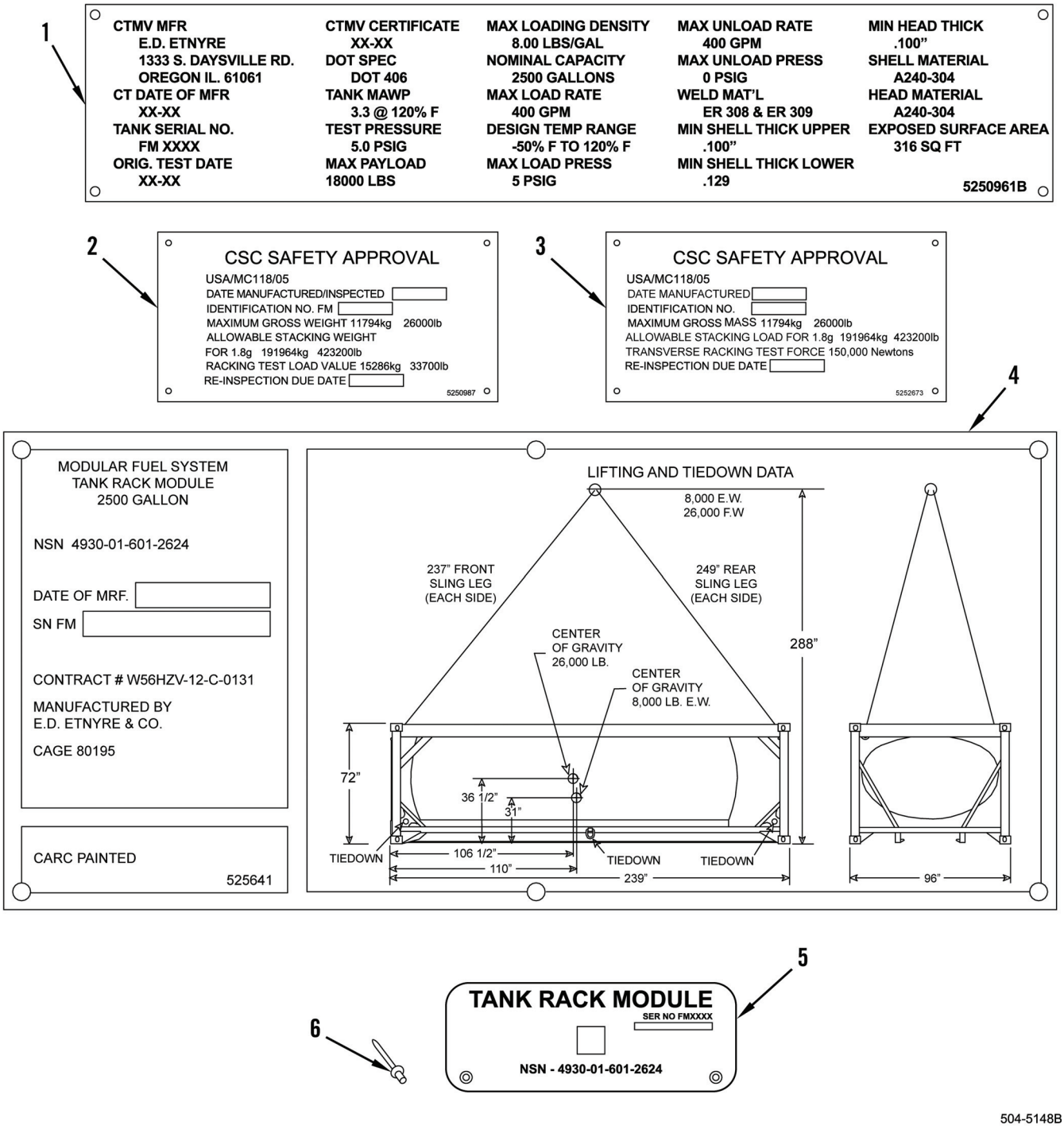

Figure 49. Data Plates.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 37	
					FIG. 49 DATA PLATES	
1	PAFZZ	9905015853157	80195	5250961	PLATE,IDENTIFICATION	1
2	XDFZZ		80195	5250987	PLATE,IDENTIFICATION (SAFETY) USBL EFF SER NOS UP TO FM1542.....	1
3	XDFZZ		80195	5252673	PLATE,IDENTIFICATION (SAFETY) USBL EFF SER NOS FM1543 AND UP.....	1
4	PAFZZ		80195	5252641	PLATE,IDENTIFICATION (TIE DOWN)	1
5	PAFZZ	7690016458497	98255	811003	LABEL (PLATE, IDENTIFICATION, TANK RACK MODULE)	1
6	PAFZZ	5320015846190	39428	97525A615	RIVET,BLIND (1/8 IN., 0.063 TO 0.125 IN. THICKNESS)	18
					END OF FIGURE	

FIELD MAINTENANCE

BULK MATERIAL

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					BULK MATERIAL	
1	PAFZZ	4720016433653	87373	B716	HOSE ASSEMBLY,NONMETALLIC	1
2	PAFZZ	4720016100720	0HYJ6	H-176	HOSE,NONMETALLIC	1
3	PAFZZ	4720011699891	61424	PFT-6B	HOSE,NONMETALLIC	1
4	PAFZZ	4720016427617	04NP0	569-043	HOSE,NONMETALLIC	1
5	PAFZZ	4720015890693	06827	7212-501BL	HOSE,NONMETALLIC	1
6	PAFZZ	4720015955976	80195	6603502	HOSE,NONMETALLIC	1
7	PAFZZ	4010013085097	81349	M83420/2-002	ROPE,WIRE	1
8	PAFZZ	4710015956038	80195	6200963	TUBE,METALLIC	1
9	PAFZZ	4720012879322	61424	PFT-6B-BLU	TUBING,NONMETALLIC	1
10	PAFZZ	4720012879313	93061	PFT-6B-RED 500	TUBING,NONMETALLIC	1
11	PAFZZ	4010015913912	80195	6001705	WIRE ROPE ASSEMBLY,SINGLE LEG	1
					END OF FIGURE	

FIELD MAINTENANCE

SPECIAL TOOLS

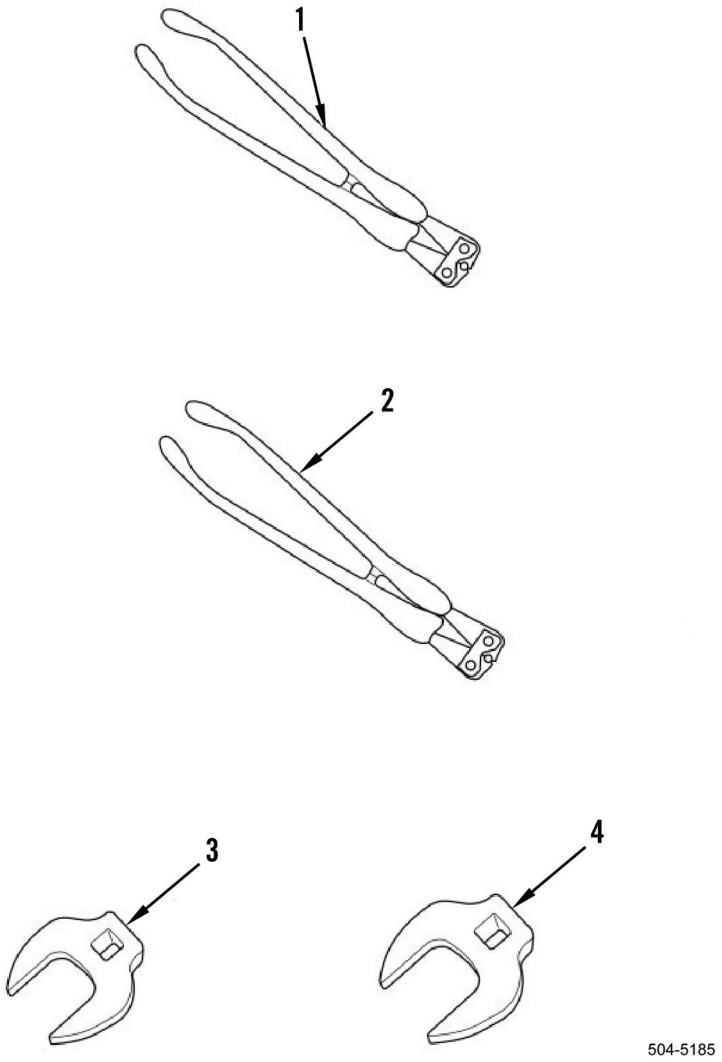

Figure 50. Special Tools.

(1) ITEM NO	(2) SMR CODE	(3) NSN	(4) CAGEC	(5) PART NUMBER	(6) DESCRIPTION AND USABLE ON CODES (UOC)	(7) QTY
					GROUP 38	
					FIG. 50 SPECIAL TOOLS	
1	PAFZZ	5120004697607	76691	64CGMP	COMPRESSING TOOL,SPLICING SLEEVE	1
2	PAFZZ	5120016444341	76691	51-MJ	COMPRESSING TOOL,SPLICING SLEEVE (MULTIDIAMETER)	1
3	PAFZZ	5120013351155	55719	FC024A	CROWFOOT ATTACHMENT,SOCKET WRENCH.....	1
4	PAFZZ	5120013351090	55719	FC030A	CROWFOOT ATTACHMENT,SOCKET WRENCH.....	1
					END OF FIGURE	

FIELD MAINTENANCE

NATIONAL STOCK NUMBER (NSN) INDEX

NATIONAL STOCK NUMBER INDEX

STOCK NUMBER	FIG.	ITEM
5315000137214	20	10
5305000712509	36	12
5310000881251	2	32
	12	3
	15	2
	18	2
	19	1
	23	10
	25	24
	32	2
	33	41
	36	8
	37	2
	37	12
	38	7
	39	8
	40	5
	46	22
	47	21
5330000889166	26	4
	28	6
	29	6
	30	6
	44	12
5925001029390	12	19
4330001120256	11	15
4730001150452	33	34
5320001299706	3	12
	3	18
	3	33
	3	44
	6	30
	6	41
	33	10
5365001382158	42	2
5310001535569	20	9
4730002018424	20	6
6695002364339	11	2
5975002386010	32	14
5331002651075	7	3
5310002725771	32	11
4730002745828	12	15
4030002811683	42	10
5340004044169	11	34
5310004079566	19	5
4730004193016	2	14
	33	5
4030004315537	44	3
5120004697607	50	1
4010005756233	4	1
	5	9
	27	12
	44	2
5310006379541	46	10
	47	6
4730006406156	2	16
	30	2
	34	7
	45	3
	45	9
	45	15
	46	17
	47	8
5330006414338	12	45
4930006723509	6	8
4930006723513	6	7
5930006814727	12	10
5930006831628	32	16
5305007239385	6	3
	6	6
5310007320558	42	5
5310007616882	12	67
4730008405348	46	8
	47	16

STOCK NUMBER	FIG.	ITEM
4730008716729	11	32
5310008807744	2	8
	33	17
	46	5
	47	14
5330008994509	30	3
	45	2
	45	8
	45	14
4730009290787	26	5
	28	5
	29	5
	44	13
4730009290790	30	5
5331009359226	26	11
4730009513296	30	4
5935009581897	32	13
4730009750324	3	21
	3	39
	9	13
5305009846210	23	5
5310009847042	12	36
	12	39
5330010242311	42	6
5975010505707	14	1
5310010519649	36	11
4730010576866	11	9
5306010579492	35	7
	40	4
4730010756960	33	27
5306010775119	42	3
5310010776773	42	4
5310010829526	14	8
	43	18
5310010830799	26	9
5310010831540	2	5
	6	23
	9	1
	11	24
	12	60
	15	7
	18	10
	22	8
	25	26
	31	18
	34	6
	43	2
5310010836490	2	31
	14	7
	43	17
5935010979974	12	35
4730011223338	10	6
5330011341986	42	7
4820011456680	23	3
4210011476483	15	10
4010011518298	28	10
	29	10
4730011589183	20	1
4820011616372	20	5
4810011659486	20	8
4720011699891	BULK	3
5935011816651	12	43
5306011939197	6	12
	47	2
5305011942588	14	6
	43	14
5330012027608	32	6
4010012041128	7	12
5975012171497	12	56
4820012212093	20	11
4730012242999	11	11
4730012595838	3	5
	3	38
4310012600619	11	21
4730012821685	6	35
	7	14
	9	21
	11	19
5330012877316	20	14
	36	1
4720012879313	BULK	10
4720012879322	BULK	9

STOCK NUMBER	FIG.	ITEM
4730013004090	23	7
4010013085097	BULK	7
4730013205320	35	3
	36	3
5120013351090	50	4
5120013351155	50	3
4730013470810	2	21
	6	37
	9	14
5305013510882	32	4
5310013578845	6	29
	12	4
	12	66
5310013578847	6	10
	14	3
	16	4
3120013723618	17	2
5340013723866	17	4
3040013727046	17	7
3040013728553	17	3
9905013795693	13	1
	25	14
5340014044169	11	34
5340014241221	14	9
	31	9
	43	13
5306014429864	36	13
5305014439078	12	46
5305014519220	12	62
	15	4
	26	8
	48	1
5305014552678	12	42
6220014605504	12	16
5975014608991	33	47
5310014634929	6	16
	12	7
	12	72
	13	4
	25	15
4330014777985	11	14

STOCK NUMBER	FIG.	ITEM
5310014812060	41	2
5340014813344	23	11
3930014838060	26	2
5310014852086	37	8
	38	6
3040014853120	36	7
4940015045273	15	12
5310015045702	12	69
5340015047309	2	9
	33	16
	46	4
	47	13
5305015047427	2	10
	33	15
	46	3
	47	12
5305015048942	2	28
	6	27
	9	5
	18	11
	33	42
	34	1
5310015088932	6	19
	21	2
5310015092488	2	4
	2	33
	3	3
	6	24
	9	6
	10	5
	11	22
	12	70
	14	5
	14	10
	15	8
	18	9
	22	9
	25	25
	31	19
	33	23
	33	45

STOCK NUMBER	FIG.	ITEM
	34	4
	43	1
	46	11
	47	5
	48	2
5310015108446	36	10
5340015123422	39	9
5305015132196	9	9
5340015150537	4	3
	5	7
	26	6
	27	14
	28	8
	29	8
	44	4
	44	11
	45	4
	45	10
	45	16
4030015167545	4	2
	5	8
	27	13
5330015182027	2	25
	2	42
3010015224575	6	5
3010015224586	6	4
5305015247346	9	2
	11	28
	12	61
5310015247656	36	9
5310015261750	12	57
4010015264895	26	7
	28	7
	29	7
	44	14
	45	5
	45	11
	45	17
5310015273369	12	26
5305015294402	2	30
	33	39
	37	3
	37	14
	38	1
5310015316758	12	28
	15	3
	18	3
	26	10
	32	3
	33	40
	37	13
5306015333783	3	10
	3	32
	12	17
	32	10
5305015335700	6	20
5310015344600	12	24
5998015396228	12	12
5360015408782	41	3
4730015436993	45	6
	45	12
	45	18
5310015475839	13	3
	25	13
4730015520695	11	31
5306015528240	19	2
	40	1
	46	20
5310015606893	6	14
	12	27
5920015628032	36	14
5305015661317	19	11
5330015668357	33	13
5305015672367	18	6
5310015722443	12	47
5940015723058	8	6
	12	64
5940015723425	8	8
	12	63
5305015751984	25	22
5305015779592	13	2
	25	12

STOCK NUMBER	FIG.	ITEM
4730015788045	28	4
	29	4
5320015800869	31	8
4930015827514	27	2
2040015827522	42	8
6680015827535	22	2
4730015827846	46	1
4720015827865	45	1
4720015827881	44	1
4730015827894	47	1
4730015827910	26	3
4720015827975	44	10
4720015828153	45	7
4720015828171	45	13
5305015834142	6	25
4820015839418	3	20
	3	46
	6	33
5340015839423	18	1
5935015839477	39	10
4730015841662	46	7
	47	15
5320015841679	43	5
5340015841694	18	4
5340015842080	2	20
	3	14
	3	47
	6	34
	7	13
	9	7
	11	18
2510015842452	42	1
4710015844065	39	5
5975015844214	39	11
4730015844590	2	13
	33	28
5340015844607	34	2
4730015845096	24	6
5330015845294	2	6
	46	6
	47	4

STOCK NUMBER	FIG.	ITEM
5320015846190	12	40
	31	10
	37	11
	49	6
4010015846194	43	9
6680015846334	19	18
5355015846482	19	3
4730015846488	20	2
5340015846706	18	7
4820015846724	36	6
5340015846737	18	8
4730015852428	2	23
	2	40
3040015852486	37	4
	38	2
4710015852511	39	4
9905015853157	49	1
5365015853248	35	4
	36	4
4730015853715	24	4
5340015854073	33	20
	46	14
	47	17
9905015856162	3	8
4710015863080	2	27
4710015863126	2	19
9905015867038	37	10
9905015867039	33	9
9905015867041	5	10
9905015867044	3	17
9905015867045	6	39
9905015867046	3	11
9905015867047	3	34
9905015867048	3	43
9905015867049	6	42
5305015877081	6	28
	9	3
	11	25
	12	58
5330015877668	46	15
4730015881996	33	19

STOCK NUMBER	FIG.	ITEM
5340015882714	25	21
5340015882813	21	3
5340015883188	32	17
5330015885004	21	4
5340015885019	43	12
3990015885068	17	1
3120015885497	2	17
	25	7
	27	4
	28	9
	29	9
	31	4
	33	21
	34	9
	35	6
	36	5
	39	2
	40	3
	46	13
	47	9
5320015886008	12	48
	25	5
	31	5
5310015886040	19	12
5310015886075	6	22
5340015886436	19	13
5340015886478	43	8
5340015886495	25	18
	28	11
	29	11
5331015886531	19	14
4010015886720	15	5
5340015886741	46	21
5340015887698	19	7
5925015890212	12	32
4720015890693	BULK	5
4730015890721	9	11
4310015894622	3	4
4010015897391	7	10
5310015899667	2	26
	2	43
	7	8
	33	31
	33	38
2920015904085	12	29
5340015907525	9	18
	11	29
2840015911503	12	11
5310015913820	2	36
	10	12
	19	10
	33	24
	43	11
	46	9
	47	3
4010015913912	BULK	11
5305015913920	7	11
5340015917679	25	17
	42	9
	46	19
	47	20
5305015918571	46	18
	47	18
5360015918646	18	5
9905015924512	23	4
5440015928244	48	5
5440015928245	48	3
5440015928246	48	4
3040015928249	37	1
5340015928254	33	44
5340015928255	3	1
2910015928556	35	5
5307015928620	41	4
5340015929415	22	7
	25	9
	31	2
5340015929786	25	4
6150015929820	14	4
2590015929832	39	1
2510015931000	25	8
5330015935278	25	16
5340015935280	25	6

STOCK NUMBER	FIG.	ITEM
5305015935452	25	23
7125015937815	25	3
5340015938136	2	35
2590015939503	43	19
5310015942124	24	1
4820015954236	2	7
	46	2
	47	11
5330015955484	33	32
	33	37
4820015955915	19	17
4730015955924	33	46
5305015955944	2	37
	3	2
	11	27
	12	59
	14	2
	15	6
	34	5
4720015955976	BULK	6
4710015956008	34	3
5340015956018	2	29
3040015956023	37	9
5340015956032	22	4
5355015956036	19	8
4710015956038	BULK	8
5330015956040	19	15
5310015956047	25	19
5310015956054	24	2
5330015956060	33	3
5340015956063	23	1
4730015956077	2	15
5365015959020	18	16
5365015959028	18	13
5365015959103	18	14
5340015959112	40	2
4730015959425	23	2
4730015959503	24	11
4730015959515	33	48
4820015959891	2	12
	33	6
5340015960352	43	7
2530015960944	39	3
2590015960953	39	7
4710015960962	2	2
4820015961119	3	7
	3	36
4730015961770	3	6
	3	37
4730015961791	2	22
2590015961805	22	1
5340015964300	33	43
5340015964306	47	23
5340015964309	2	34
5365015965426	37	6
	38	4
5340015965429	37	5
	38	3
5310015965439	37	7
	38	5
5340015967737	15	9
5340015967811	15	1
2590015967864	22	3
4730015971230	33	30
	33	35
4730015975176	3	22
	3	40
4930016012624	1	1
5805016023816	12	8
5310016029922	10	11
	18	15
	19	6
5310016050886	20	15
	21	1
	35	2
	36	2
4720016100720	BULK	2
6620016112038	19	16
5305016148937	12	37
5305016170802	7	6
4730016199441	2	3
	3	13

STOCK NUMBER	FIG.	ITEM
	3	30
6685016212967	11	13
5305016247623	32	7
5340016322646	33	8
4730016322839	28	1
4730016322845	29	1
4730016322858	28	2
4730016322861	28	3
4730016322865	29	3
4730016322871	29	2
5340016322944	33	7
4710016324551	33	25
4820016324564	33	14
5305016324783	3	19
	3	45
	6	40
	6	46
	33	11
5306016325106	10	3
5340016325255	25	20
4710016325475	2	1
6105016325479	8	1
4710016325831	33	1
5310016326508	6	17
	43	15
5305016326509	43	10
5305016326511	9	19
	10	10
	11	26
	12	75
	16	3
	22	10
	25	27
	31	17
	43	3
	47	22
2920016326512	8	4
4730016326584	2	39
	3	26
	3	48
	6	44

STOCK NUMBER	FIG.	ITEM
	9	15
	11	17
5305016326865	33	2
5305016326882	2	11
	33	26
4730016327270	30	1
5310016327837	19	4
5330016327897	8	3
5330016327903	8	2
4030016329001	22	6
	25	10
	31	7
4730016329591	5	1
4730016330796	46	16
	47	7
4730016331707	27	6
4730016332126	27	1
9905016336176	27	3
2910016412646	6	1
5330016413634	4	4
	4	7
	5	4
	5	6
	27	7
	27	10
	44	5
	44	8
2510016413811	4	5
	5	5
	27	8
	44	6
4730016427536	47	19
4720016433653	BULK	1
5120016444341	50	2
5305016452437	2	24
	2	41
	33	33
	33	36
5340016452450	3	23
	3	28
4730016452589	4	8

STOCK NUMBER	FIG.	ITEM
	5	3
	27	11
	44	9
5340016452593	4	6
	5	2
	27	9
	44	7
4730016452976	6	38
	11	30
4310016452978	3	29
5305016452979	6	18
4730016452982	6	36
5999016452986	6	26
5999016452988	6	15
7690016452990	6	31
5340016452991	6	13
5340016452994	6	9
5999016452997	6	11
5342016453138	7	5
4730016453266	7	4
4730016453267	7	2
4730016453270	7	1
4320016454857	7	9
5330016454963	7	7
5305016455118	8	5
6680016455697	9	22
4810016455769	10	9
4330016455837	11	1
4730016455839	10	8
4710016455842	9	26
4730016455844	9	25
4730016455861	10	7
4730016455876	9	12
5340016455883	9	4
5975016455890	9	17
5340016455894	10	4
	11	23
	12	71
5340016455898	9	10
5340016455909	9	8
5355016455913	9	24
4730016456309	11	3
5342016456729	11	5
5330016456730	11	6
5340016456731	10	2
5306016456741	11	7
4820016456746	11	4
5340016456941	43	4
4930016456974	16	2
4930016456980	16	1
6680016456982	11	8
2540016457547	25	2
2540016457549	25	1
4930016457559	26	1
2540016457568	15	11
4710016457572	11	10
4710016457574	11	12
4730016457576	11	20
6150016457577	31	16
6150016457584	31	15
6150016457604	31	14
6150016457609	31	13
4820016457627	20	3
2540016457648	31	1
4730016458055	23	6
5305016458441	20	7
7690016458464	31	11
5307016458465	14	11
5305016458474	18	12
	19	9
5340016458476	20	12
5305016458485	20	16
5315016458491	17	5
5365016458494	23	8
7690016458497	49	5
3040016458506	20	13
5340016458508	20	17
5340016458531	11	36
5340016458534	11	35
5975121754534	12	6
	12	65
6150016463321	12	23

STOCK NUMBER	FIG.	ITEM
5980016463339	12	22
5999016463356	12	1
6150016463435	12	21
6150016463497	12	20
6150016463517	12	9
6150016463528	12	5
6150016463542	12	2
5305016463788	12	14
5330016463789	12	18
5330016463792	12	13
5310016463810	12	25
6150016466268	32	12
6150016466296	12	53
6150016466378	12	51
6150016456412	12	34
6150016466419	12	33
4730016466441	33	29
4730016466445	33	18
4710016466448	33	12
5930016466451	32	1
5910016466457	12	68
4830016466462	12	38
6150016466473	12	30
4010016467054	25	11
5340016467059	9	23
5340016467060	32	5
4730016468826	24	7

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PART NUMBER INDEX

PART NUMBER INDEX

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
46522	A2329	5331002651075	7	3
58536	AA52481-4	5330006414338	12	45
58536	A-A-52506-F-64	4730002745828	12	15
58536	AA59326/10-8-A	4730009290787	26	5
58536	AA59326/10-8-A	4730009290787	44	13
58536	AA59326/12-5-A-2	4730009513296	30	4
58536	AA59326/8-4-A-1	4730008405348	46	8
58536	AA59326/8-4-A-1	4730008405348	47	16
58536	AA59326-G8	5330000889166	26	4
58536	AA59326-G8	5330000889166	28	6
58536	AA59326-G8	5330000889166	29	6
58536	AA59326-G8	5330000889166	30	6
58536	AA59326-G8	5330000889166	44	12
58536	AA59326-G-9	5330008994509	30	3
58536	AA59326-G-9	5330008994509	45	2
58536	AA59326-G-9	5330008994509	45	8
58536	AA59326-G-9	5330008994509	45	14
58536	AA59326IX-9	4730006406156	2	16
58536	AA59326IX-9	4730006406156	30	2
58536	AA59326IX-9	4730006406156	34	7
58536	AA59326IX-9	4730006406156	45	3
58536	AA59326IX-9	4730006406156	45	9
58536	AA59326IX-9	4730006406156	45	15
58536	AA59326IX-9	4730006406156	46	17
58536	AA59326IX-9	4730006406156	47	8
58536	AA59326X1	4730009290790	30	5
80205	AN316-9R	5310001535569	20	9
79318	AN502C10-4	5305016458441	20	7
31408	ASP-1BV	4310012600619	11	21
80204	B1821BH025C150N	5305000712509	36	12
87373	B716	4720016433653	BULK	1
03743	C50-A	5975002386010	32	14
03743	CG-7575	5975012171497	12	56
75272	CJV-1013Z1	5340016458534	11	35
75272	COV-0913Z1	5340004044169	11	34
75272	COV-1313Z1	5340016455894	10	4

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
75272	COV-1313Z1	5340016455894	11	23
75272	COV-1313Z1	5340016455894	12	71
03933	D505022	4810016455769	10	9
64135	DC60F	5805016023816	12	8
72661	DDA300AL	4730016322865	29	3
72661	DDC300AL	4730016322861	28	3
72661	DDDC300	4730016322871	29	2
72661	DDDP300	4730016322858	28	2
13226	EV46458ALTS	4820015846724	36	6
79318	F417	4730001150452	33	34
79318	F613ACD		24	10
79318	F646ADP		20	4
79318	F660AC	2910015928556	35	5
55719	FC024A	5120013351155	50	3
55719	FC030A	5120013351090	50	4
79154	G014077LT0	5330015182027	2	25
79154	G014077LT0	5330015182027	2	42
13226	G15181CB		35	1
13226	G15266CB	5330012877316	20	14
13226	G15266CB	5330012877316	36	1
13573	G-2121	5330016456730	11	6
03743	GK50-N	5330012027608	32	6
0HBT5	GOCB1515 8X24	5340015886495	25	18
0HBT5	GOCB1515 8X24	5340015886495	28	11
0HBT5	GOCB1515 8X24	5340015886495	29	11
32218	GTP144	6695002364339	11	2
0HYJ6	H-176	4720016100720	BULK	2
13573	I-420MMA	4330014777985	11	14
80195	L238006	4730016458055	23	6
80195	L238009	4730015890721	9	11
80195	L238039	4730015961791	2	22
13573	LA06	4730016456309	11	3
81349	M24243/1-F402	5320001299706	3	12
81349	M24243/1-F402	5320001299706	3	18
81349	M24243/1-F402	5320001299706	3	33
81349	M24243/1-F402	5320001299706	3	44
81349	M24243/1-F402	5320001299706	6	30
81349	M24243/1-F402	5320001299706	6	41
81349	M24243/1-F402	5320001299706	33	10
81349	M45913/1-4CG5C	5310000881251	2	32

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
81349	M45913/1-4CG5C	5310000881251	12	3
81349	M45913/1-4CG5C	5310000881251	15	2
81349	M45913/1-4CG5C	5310000881251	18	2
81349	M45913/1-4CG5C	5310000881251	19	1
81349	M45913/1-4CG5C	5310000881251	23	10
81349	M45913/1-4CG5C	5310000881251	25	24
81349	M45913/1-4CG5C	5310000881251	32	2
81349	M45913/1-4CG5C	5310000881251	33	41
81349	M45913/1-4CG5C	5310000881251	36	8
81349	M45913/1-4CG5C	5310000881251	37	2
81349	M45913/1-4CG5C	5310000881251	37	12
81349	M45913/1-4CG5C	5310000881251	38	7
81349	M45913/1-4CG5C	5310000881251	39	8
81349	M45913/1-4CG5C	5310000881251	40	5
81349	M45913/1-4CG5C	5310000881251	46	22
81349	M45913/1-4CG5C	5310000881251	47	21
81349	M45913/3-6CG8C	5310015092488	2	4
81349	M45913/3-6CG8C	5310015092488	2	33
81349	M45913/3-6CG8C	5310015092488	3	3
81349	M45913/3-6CG8C	5310015092488	6	24
81349	M45913/3-6CG8C	5310015092488	9	6
81349	M45913/3-6CG8C	5310015092488	10	5
81349	M45913/3-6CG8C	5310015092488	11	22
81349	M45913/3-6CG8C	5310015092488	12	70
81349	M45913/3-6CG8C	5310015092488	14	5
81349	M45913/3-6CG8C	5310015092488	14	10
81349	M45913/3-6CG8C	5310015092488	15	8
81349	M45913/3-6CG8C	5310015092488	18	9
81349	M45913/3-6CG8C	5310015092488	22	9
81349	M45913/3-6CG8C	5310015092488	25	25
81349	M45913/3-6CG8C	5310015092488	31	19
81349	M45913/3-6CG8C	5310015092488	33	23
81349	M45913/3-6CG8C	5310015092488	33	45
81349	M45913/3-6CG8C	5310015092488	34	4
81349	M45913/3-6CG8C	5310015092488	43	1
81349	M45913/3-6CG8C	5310015092488	46	11
81349	M45913/3-6CG8C	5310015092488	47	5
81349	M45913/3-6CG8C	5310015092488	48	2
81349	M83420/2-002	4010013085097	BULK	7
81349	M83420/4-010	4010005756233	4	1

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
81349	M83420/4-010	4010005756233	5	9
81349	M83420/4-010	4010005756233	27	12
81349	M83420/4-010	4010005756233	44	2
92858	MGR75-50	4930016456974	16	2
0UJB5	MIL-001-190	5310015247656	36	9
92858	MRGR75-50	4930016456980	16	1
96906	MS24523-21	5930006814727	12	10
81349	MS24523-22	5930006831628	32	16
80205	MS24665-359	5315000137214	20	10
96906	MS25043-14DA	5935011816651	12	43
81343	MS29513-151	5331009359226	26	11
80205	MS35338-141	5310009847042	12	36
80205	MS35338-141	5310009847042	12	39
96906	MS51963-65	5305007239385	6	3
96906	MS51963-65	5305007239385	6	6
96906	MS51967-2	5310007616882	12	67
96906	MS51967-8	5310007320558	42	5
13226	OP9001SL	3040015852486	37	4
13226	OP9001SL	3040015852486	38	2
8L582	OR-012-2885-633	5331015886531	19	14
65035	P49866-11	5310006379541	46	10
65035	P49866-11	5310006379541	47	6
4N5U7	PB6C-10	4940015045273	15	12
61424	PFT-6B	4720011699891	BULK	3
61424	PFT-6B-BLU	4720012879322	BULK	9
93061	PFT-6B-RED 500	4720012879313	BULK	10
S0110	PL13631000	4010011518298	28	10
S0110	PL13631000	4010011518298	29	10
61178	PL5250	5340016467059	9	23
19204	RIA149111-4	5310014812060	41	2
61125	RJ0001	2510016413811	4	5
61125	RJ0001	2510016413811	5	5
61125	RJ0001	2510016413811	27	8
61125	RJ0001	2510016413811	44	6
61125	RJ0009	5330016413634	4	4
61125	RJ0009	5330016413634	4	7
61125	RJ0009	5330016413634	5	4
61125	RJ0009	5330016413634	5	6
61125	RJ0009	5330016413634	27	7
61125	RJ0009	5330016413634	27	10

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
61125	RJ0009	5330016413634	44	5
61125	RJ0009	5330016413634	44	8
61125	RJ0015	4730016452589	4	8
61125	RJ0015	4730016452589	5	3
61125	RJ0015	4730016452589	27	11
61125	RJ0015	4730016452589	44	9
61125	RJA1003	5340016452593	4	6
61125	RJA1003	5340016452593	5	2
61125	RJA1003	5340016452593	27	9
61125	RJA1003	5340016452593	44	7
53421	RT250R0X2	5975016455890	9	17
80195	S213903	4730015881996	33	19
SH703	SAS-4410	2920015904085	12	29
98255	SW30255-32	5306014429864	36	13
80195	T181741	5310015942124	24	1
D8527	T50L0C2	5975121754534	12	6
D8527	T50L0C2	5975121754534	12	65
72661	TBC288	5340016452450	3	23
72661	TBC288	5340016452450	3	28
61178	TN860AN1CAB2GAC	6680016455697	9	22
61125	USC10001	4730016331707	27	6
61125	USC10013	4730012595838	3	5
61125	USC10013	4730012595838	3	38
61125	USC10113	4730016329591	5	1
1G3R1	VSS200SS	4820015961119	3	7
1G3R1	VSS200SS	4820015961119	3	36
3M7L3	VTC-562-8	5340016458531	11	36
89346	W-10869-14	4730008716729	11	32
13226	WD304 AL V	4820016324564	33	14
11817	WD404 AL V	4820015954236	2	7
11817	WD404 AL V	4820015954236	46	2
11817	WD404 AL V	4820015954236	47	11
56065	006002.01		8	7
56065	00911801	5305016455118	8	5
80195	0120217	5310010836490	2	31
80195	0120217	5310010836490	14	7
80195	0120217	5310010836490	43	17
80195	0120376-CR	5310016327837	19	4
80195	0120380	5310010830799	26	9
80195	0120391-CR	5310016326508	6	17

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	0120391-CR	5310016326508	43	15
80195	0120614	5310010829526	14	8
80195	0120614	5310010829526	43	18
80195	0126672-CR	5306016325106	10	3
80195	0138485	5310016463810	12	25
80195	0144035	4730016457576	11	20
80195	0144042		12	52
80195	0180073-CR	5305016326509	43	10
80195	0180079-CR	5305016458474	18	12
80195	0180079-CR	5305016458474	19	9
80195	0180120-CR	5305016326511	9	19
80195	0180120-CR	5305016326511	10	10
80195	0180120-CR	5305016326511	11	26
80195	0180120-CR	5305016326511	12	75
80195	0180120-CR	5305016326511	16	3
80195	0180120-CR	5305016326511	22	10
80195	0180120-CR	5305016326511	25	27
80195	0180120-CR	5305016326511	31	17
80195	0180120-CR	5305016326511	43	3
80195	0180120-CR	5305016326511	47	22
80195	0180122	5305015955944	2	37
80195	0180122	5305015955944	3	2
80195	0180122	5305015955944	11	27
80195	0180122	5305015955944	12	59
80195	0180122	5305015955944	14	2
80195	0180122	5305015955944	15	6
80195	0180122	5305015955944	34	5
80195	0180134-CR	5305016170802	7	6
80195	0180137-CR	5305016326882	2	11
80195	0180137-CR	5305016326882	33	26
80195	0223515-CR	5305016326865	33	2
34899	0431173551	5998015396228	12	12
80195	0436732	5305016463788	12	14
34899	0444176451	2840015911503	12	11
80195	0446363	5310015913820	2	36
80195	0446363	5310015913820	10	12
80195	0446363	5310015913820	19	10
80195	0446363	5310015913820	33	24
80195	0446363	5310015913820	43	11
80195	0446363	5310015913820	46	9

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	0446363	5310015913820	47	3
3HMC9	10137	5330016454963	7	7
3HMC9	10140	5330015955484	33	32
3HMC9	10140	5330015955484	33	37
13226	10587EY	3040014853120	36	7
19207	11674728	5935010979974	12	35
19207	12380149	9905013795693	13	1
19207	12380149	9905013795693	25	14
19207	12440542	3040013728553	17	3
0Y3H3	12759-01020	5320015886008	12	48
0Y3H3	12759-01020	5320015886008	25	5
0Y3H3	12759-01020	5320015886008	31	5
19207	13216E2773	4330001120256	11	15
19207	13219E0462	5975010505707	14	1
75Q65	1726860 W	3120013723618	17	2
13226	19167SL	5365015965426	37	6
13226	19167SL	5365015965426	38	4
13226	19622SL	5340015965429	37	5
13226	19622SL	5340015965429	38	3
4HEJ2	2012262999	5340016456731	10	2
86184	20170407J	3930014838060	26	2
3HMC9	20189D	4730015841662	46	7
3HMC9	20189D	4730015841662	47	15
3HMC9	20358	5342016453138	7	5
3HMC9	20360	4730015971230	33	30
3HMC9	20360	4730015971230	33	35
73634	20910	5306010579492	35	7
73634	20910	5306010579492	40	4
13226	21050A	5920015628032	36	14
99193	210-521-9001	5925001029390	12	19
7Z043	214N1V02	5940015723058	8	6
7Z043	214N1V02	5940015723058	12	64
7Z043	214N1V14	5940015723425	8	8
7Z043	214N1V14	5940015723425	12	63
13226	26284AL	5340015047309	2	9
13226	26284AL	5340015047309	33	16
13226	26284AL	5340015047309	46	4
13226	26284AL	5340015047309	47	13
79318	2731807-1	4820011616372	20	5
79318	2733418	4730011589183	20	1

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
79318	2734801	4810011659486	20	8
30003	2842687	4030004315537	44	3
75Q65	2HL806	5340013723866	17	4
75Q65	2HL808	3040013727046	17	7
41592	300ALMM 200 ANAJ	4930015827514	27	2
36933	300DC	4730009290787	28	5
36933	300DC	4730009290787	29	5
72661	300-F-AL	4730015788045	28	4
72661	300-F-AL	4730015788045	29	4
13226	3029SL	5306010775119	42	3
13226	3031-SL	5310010776773	42	4
13226	3036SL	5365001382158	42	2
13445	30407-50	5925015890212	12	32
39428	3079T44	5340015929415	22	7
39428	3079T44	5340015929415	25	9
39428	3079T44	5340015929415	31	2
03670	30937	4210011476483	15	10
13226	3119BN	5330010242311	42	6
07524	317815	4930006723509	6	8
39428	3225T23	5975014608991	33	47
39428	3225T24	5340015123422	39	9
80195	3311945	5307015928620	41	4
13226	3560BN	5330011341986	42	7
49181	36103	5310008807744	2	8
49181	36103	5310008807744	33	17
49181	36103	5310008807744	46	5
49181	36103	5310008807744	47	14
39428	3610T32	4010015264895	26	7
39428	3610T32	4010015264895	28	7
39428	3610T32	4010015264895	29	7
39428	3610T32	4010015264895	44	14
39428	3610T32	4010015264895	45	5
39428	3610T32	4010015264895	45	11
39428	3610T32	4010015264895	45	17
94222	37-20-086-10	5340014241221	14	9
94222	37-20-086-10	5340014241221	31	9
94222	37-20-086-10	5340014241221	43	13
94222	38-106-04-16	5320015841679	43	5
39428	3936T14	3120015885497	28	9
39428	3936T14	3120015885497	29	9

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
39428	3936T14	3120015885497	35	6
39428	3936T14	3120015885497	36	5
39428	3936T14	3120015885497	40	3
72661	400-ALT-AL	4730016330796	46	16
72661	400-ALT-AL	4730016330796	47	7
72661	400-TLT-AL	4730016427536	47	19
79318	4052-4	4820012212093	20	11
33813	40W	4730015436993	45	6
33813	40W	4730015436993	45	12
33813	40W	4730015436993	45	18
77294	416995	5305009846210	23	5
39428	4459K75	5330015885004	21	4
39428	4464K15	4730013004090	23	7
39428	4464K16	4730015975176	3	22
39428	4464K16	4730015975176	3	40
39428	4464K261	5365015853248	35	4
39428	4464K261	5365015853248	36	4
39428	4464K37	4730015844590	2	13
39428	4464K37	4730015844590	33	28
39428	4464K41	4730012821685	6	35
39428	4464K41	4730012821685	7	14
39428	4464K41	4730012821685	9	21
39428	4464K41	4730012821685	11	19
39428	4464K53	4730013470810	2	21
39428	4464K53	4730013470810	6	37
39428	4464K53	4730013470810	9	14
30780	4-4DTX-S	4730012242999	11	11
30780	4-4FTXS	4730010576866	11	9
39428	4830K111	4730013205320	35	3
39428	4830K111	4730013205320	36	3
39428	4830K221	4730009750324	3	21
39428	4830K221	4730009750324	3	39
39428	4830K221	4730009750324	9	13
76691	488-4-VM	4030016329001	22	6
76691	488-4-VM	4030016329001	25	10
76691	488-4-VM	4030016329001	31	7
39428	5011T67	4730015846488	20	2
30119	5016	4730016326584	2	39
30119	5016	4730016326584	3	26
30119	5016	4730016326584	3	48

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
30119	5016	4730016326584	6	44
30119	5016	4730016326584	9	15
30119	5016	4730016326584	11	17
76691	51-MJ	5120016444341	50	2
80195	5250117	5315016458491	17	5
80195	5250126	3990015885068	17	1
80195	5250328		3	16
80195	5250328		3	42
80195	5250328		6	32
80195	5250328		6	43
80195	5250424	5355015956036	19	8
80195	5250819	5440015928245	48	3
80195	5250841	3040015956023	37	9
80195	5250870	4710015956008	34	3
80195	5250882	4710015863126	2	19
80195	5250885	5340015928254	33	44
80195	5250890	5340015956018	2	29
80195	5250929	5340015928255	3	1
80195	5250961	9905015853157	49	1
80195	5250968	5340015935280	25	6
80195	5250973	5340015929786	25	4
80195	5250980	5330015935278	25	16
80195	5250987		49	2
80195	5250992	4820015955915	19	17
80195	5251025	9905015867044	3	17
80195	5251026	9905015867046	3	11
80195	5251027	9905015867047	3	34
80195	5251028	9905015867048	3	43
80195	5251029	9905015867049	6	42
80195	5251036	9905015867039	33	9
80195	5251038	9905015867038	37	10
80195	5251085	5340015964309	2	34
80195	5251089	3040015928249	37	1
80195	5251099		3	9
80195	5251099		3	35
80195	5251102	5340015964306	47	23
80195	5251107	6680015846334	19	18
80195	5251112	9905015867041	5	10
80195	5251116	5340016322646	33	8
80195	5251117	5330015956040	19	15

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	5251119	2510015931000	25	8
80195	5251121	6620016112038	19	16
80195	5251140	4710015960962	2	2
80195	5251189	5340015844607	34	2
80195	5251192	5340016458508	20	17
80195	5251206	4730015827894	47	1
80195	5251257	5340015846706	18	7
80195	5251259	5365015959028	18	13
80195	5251263	5340015846737	18	8
80195	5251264	5365015959103	18	14
80195	5251265	5365015959020	18	16
80195	5251268	5355015846482	19	3
80195	5251277	5340015841694	18	4
80195	5251278	5340015839423	18	1
80195	5251292	4010015846194	43	9
80195	5251314	4710015863080	2	27
80195	5251318	4310015894622	3	4
80195	5251320	4730015961770	3	6
80195	5251320	4730015961770	3	37
80195	5251321	4310016452978	3	29
80195	5251368	5975015844214	39	11
80195	5251389	2040015827522	42	8
80195	5251391	4730015827846	46	1
80195	5251396	5340015886741	46	21
80195	5251400	5935015839477	39	10
80195	5251405	5340015959112	40	2
80195	5251556	9905015924512	23	4
80195	5251557	4820016457627	20	3
80195	5251558		3	31
80195	5251559	9905015856162	3	8
80195	5251560		3	15
80195	5251561		3	41
80195	5251562	9905015867045	6	39
80195	5251563	5340016322944	33	7
80195	5251566	2590015929832	39	1
80195	5251569	2530015960944	39	3
80195	5251572		39	6
80195	5251575	2590015960953	39	7
80195	5251578	4710015844065	39	5
80195	5251581	4710015852511	39	4

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	5251599	4710016466448	33	12
80195	5251602	4730016466441	33	29
80195	5251604	4710016325831	33	1
80195	5251605	4710016324551	33	25
80195	5251610	5340015964300	33	43
80195	5251624	4730015827910	26	3
80195	5251627	7125015937815	25	3
80195	5251628	2540016457547	25	2
80195	5251630	4730016466445	33	18
80195	5251662	5440015928244	48	5
80195	5251675	5440015928246	48	4
80195	5251697	5340015938136	2	35
80195	5251701	5340015885019	43	12
80195	5251704	2540016457568	15	11
80195	5251707	5340015967811	15	1
80195	5251712	5340015967737	15	9
80195	5251714	4010015886720	15	5
80195	5251726	5340015960352	43	7
80195	5251736	9905016336176	27	3
80195	5251737	5340016456941	43	4
80195	5251738	2590015939503	43	19
80195	5251746	4010016467054	25	11
80195	5251747	4720015827881	44	1
80195	5251748		43	16
80195	5251749	5340016325255	25	20
80195	5251977	5340015887698	19	7
80195	5251978	5340015886436	19	13
80195	5252227	5340015882813	21	3
80195	5252234	2590015961805	22	1
80195	5252235	6680015827535	22	2
80195	5252236	2590015967864	22	3
80195	5252240	5340015956032	22	4
80195	5252246		22	5
80195	5252293		2	18
80195	5252293		33	22
80195	5252293		34	8
80195	5252293		46	12
80195	5252293		47	10
80195	5252360	2540016457549	25	1
80195	5252370		3	24

PART NUMBER INDEX - Continued

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	5252371		3	27
80195	5252372		26	1
80195	5252377		23	9
80195	5252378		23	12
80195	5252379		23	13
80195	5252380		24	8
80195	5252381	4730016332126	27	1
80195	5252382		24	9
80195	5252383		24	3
80195	5252384		24	5
80195	5252385		33	49
80195	5252420	4730016322839	28	1
80195	5252421	4730016322845	29	1
80195	5252424	4730016327270	30	1
80195	5252443		27	5
80195	5252495	5340016455898	9	10
80195	5252503	5340016455883	9	4
80195	5252504	6150016457609	31	13
80195	5252505	6150016457584	31	15
80195	5252506	6150016457577	31	16
80195	5252507	6150016466296	12	53
80195	5252508	2540016457648	31	1
80195	5252509		31	12
80195	5252513		31	6
80195	5252515	5999016463356	12	1
80195	5252516		12	31
80195	5252519		12	50
80195	5252523		31	3
80195	5252524	7690016458464	31	11
80195	5252525	5340016455909	9	8
80195	5252529	6150016466419	12	33
80195	5252530	6150016456412	12	34
80195	5252531	6150016463542	12	2
80195	5252532	6150016463321	12	23
80195	5252533	6150016463435	12	21
80195	5252534	6150016463497	12	20
80195	5252535	6150016463517	12	9
80195	5252536	6150016463528	12	5
80195	5252537	5980016463339	12	22
80195	5252538		12	44

PART NUMBER INDEX - Continued

CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	5252541		12	41
80195	5252545	6150016466268	32	12
80195	5252546	6150016457604	31	14
80195	5252549		11	33
80195	5252550		11	16
80195	5252552		10	1
80195	5252553		2	38
80195	5252554		6	45
80195	5252556		3	25
80195	5252556		9	16
80195	5252557		3	49
80195	5252557		9	20
80195	5252558		11	37
80195	5252561	5340016467060	32	5
80195	5252562		32	8
80195	5252563	5930016466451	32	1
80195	5252564	7690016452990	6	31
80195	5252565		32	9
80195	5252571		6	21
80195	5252572	5999016452986	6	26
80195	5252574	6150016466473	12	30
80195	5252578	4930016012624	1	1
80195	5252584	4710016325475	2	1
80195	5252595	3040016458506	20	13
80195	5252596	5340016458476	20	12
80195	5252597	4710016455842	9	26
80195	5252609	4730016453267	7	2
80195	5252612	4730016453270	7	1
80195	5252614	4320016454857	7	9
80195	5252628	2920016326512	8	4
80195	5252629	6105016325479	8	1
80195	5252630	5330016327903	8	2
80195	5252631	6150016466378	12	51
80195	5252632	5910016466457	12	68
80195	5252633	5340016452994	6	9
80195	5252634	5340016452991	6	13
80195	5252635	5330016327897	8	3
80195	5252636	5999016452988	6	15
80195	5252637	5999016452997	6	11
80195	5252638		12	54

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	5252639	5330016463789	12	18
80195	5252640	5330016463792	12	13
80195	5252641		49	4
80195	5252673		49	3
39428	5346K16	4730015520695	11	31
39428	5363K76	4730016199441	2	3
39428	5363K76	4730016199441	3	13
39428	5363K76	4730016199441	3	30
81337	5-4-4699	5935009581897	32	13
33813	5500240F	5330015877668	46	15
13573	554X509	4820016456746	11	4
81646	56152	4730002018424	20	6
39428	5685K39	5340015883188	32	17
04NP0	569-043		BULK	4
53711	5793250 FIND 326	4030015167545	4	2
53711	5793250 FIND 326	4030015167545	5	8
53711	5793250 FIND 326	4030015167545	27	13
11083	5D1026	4730011223338	10	6
80195	6000065	5330015845294	2	6
80195	6000065	5330015845294	46	6
80195	6000065	5330015845294	47	4
80195	6000071	5330015668357	33	13
80195	6000855	4730015956077	2	15
80195	6001131	5340015907525	9	18
80195	6001131	5340015907525	11	29
80195	6001161	5340015886478	43	8
80195	6001225	5360015408782	41	3
80195	6001503		43	6
80195	6001538	4720015827865	45	1
80195	6001669	5340015882714	25	21
80195	6001675	5305015935452	25	23
80195	6001676	5310015956047	25	19
80195	6001705	4010015913912	BULK	11
80195	6001716	5340015917679	25	17
80195	6001716	5340015917679	42	9
80195	6001716	5340015917679	46	19
80195	6001716	5340015917679	47	20
80195	6001724	3120015885497	2	17
80195	6001724	3120015885497	25	7
80195	6001724	3120015885497	27	4

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	6001724	3120015885497	31	4
80195	6001724	3120015885497	33	21
80195	6001724	3120015885497	34	9
80195	6001724	3120015885497	39	2
80195	6001724	3120015885497	46	13
80195	6001724	3120015885497	47	9
80195	6001882	4720015828153	45	7
80195	6001903	4720015828171	45	13
80195	6001908	4720015827975	44	10
80195	6001991	4010015897391	7	10
80195	6002117		12	49
80195	6002126		12	73
80195	6002128		12	55
80195	6002226		12	74
80195	6002249	5305016452979	6	18
80195	6002389	5305016452437	2	24
80195	6002389	5305016452437	2	41
80195	6002389	5305016452437	33	33
80195	6002389	5305016452437	33	36
80195	6002390	5310015899667	2	26
80195	6002390	5310015899667	2	43
80195	6002390	5310015899667	33	31
80195	6002390	5310015899667	33	38
80195	6100440	5310015886040	19	12
80195	6100459	5310015956054	24	2
80195	6100669	5305016324783	3	19
80195	6100669	5305016324783	3	45
80195	6100669	5305016324783	6	40
80195	6100669	5305016324783	6	46
80195	6100669	5305016324783	33	11
80195	6100671	5305016458485	20	16
80195	6100740	5305015913920	7	11
80195	6200884	5340015854073	33	20
80195	6200884	5340015854073	46	14
80195	6200884	5340015854073	47	17
80195	6200941	4730015959425	23	2
80195	6200963	4710015956038	BULK	8
80195	6200971	5340015842080	2	20
80195	6200971	5340015842080	3	14
80195	6200971	5340015842080	3	47

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
80195	6200971	5340015842080	6	34
80195	6200971	5340015842080	7	13
80195	6200971	5340015842080	9	7
80195	6200971	5340015842080	11	18
80195	6201108	4730016455839	10	8
80195	6201109	4730016452976	6	38
80195	6201109	4730016452976	11	30
80195	6201111	4730016452982	6	36
80195	6201112	4730016455861	10	7
80195	6201139	4730016455844	9	25
80195	6201142		32	15
81646	63004-0024	4730016468826	24	7
76691	64CGMP	5120004697607	50	1
80195	6603072	4730016455876	9	12
80195	6603075	5365016458494	23	8
80195	6603080	5340015956063	23	1
80195	6603089	4820015959891	2	12
80195	6603089	4820015959891	33	6
80195	6603097	5330015956060	33	3
80195	6603288	4730015959515	33	48
80195	6603289	4730015955924	33	46
80195	6603290	4730015853715	24	4
80195	6603464	4730015852428	2	23
80195	6603464	4730015852428	2	40
80195	6603502	4720015955976	BULK	6
80195	6603515	4730015845096	24	6
80195	6603516	4730015959503	24	11
80195	6603579	4820015839418	3	20
80195	6603579	4820015839418	3	46
80195	6603579	4820015839418	6	33
80195	6603764	2510015842452	42	1
80195	6604134	4330016455837	11	1
54938	6-6-MCN-SS	4730004193016	2	14
54938	6-6-MCN-SS	4730004193016	33	5
80195	6702347	5307016458465	14	11
80195	6703627	6150015929820	14	4
07524	701992	4930006723513	6	7
13573	703X500	6685016212967	11	13
06827	7212-501BL	4720015890693	BULK	5
13573	731Y500	6680016456982	11	8

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
19207	7410218	5310004079566	19	5
13445	75920	4830016466462	12	38
57661	76-104-01	4820011456680	23	3
61178	800G8870	5355016455913	9	24
98255	811003	7690016458497	49	5
14550	86-00066-105	6220014605504	12	16
4X630	863-000313	5340014813344	23	11
39428	86805T38	5340015150537	4	3
39428	86805T38	5340015150537	5	7
39428	86805T38	5340015150537	26	6
39428	86805T38	5340015150537	27	14
39428	86805T38	5340015150537	28	8
39428	86805T38	5340015150537	29	8
39428	86805T38	5340015150537	44	4
39428	86805T38	5340015150537	44	11
39428	86805T38	5340015150537	45	4
39428	86805T38	5340015150537	45	10
39428	86805T38	5340015150537	45	16
1S3F8	872926	2910016412646	6	1
55524	8731-01	4730016453266	7	4
39428	8947T14	4010012041128	7	12
13573	900268	5342016456729	11	5
13573	900386	4710016457574	11	12
13573	900387	4710016457572	11	10
13573	900510	5306016456741	11	7
39428	90108A413	5310015316758	12	28
39428	90108A413	5310015316758	15	3
39428	90108A413	5310015316758	18	3
39428	90108A413	5310015316758	26	10
39428	90108A413	5310015316758	32	3
39428	90108A413	5310015316758	33	40
39428	90108A413	5310015316758	37	13
39428	90126A033	5310015088932	6	19
39428	90126A033	5310015088932	21	2
21351	90128A587	5305015661317	19	11
39428	90283A144	5305016247623	32	7
39428	90283A194	5305013510882	32	4
39428	90283A829	5305011942588	14	6
39428	90283A829	5305011942588	43	14
39428	90313A400	5310015475839	13	3

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
39428	90313A400	5310015475839	25	13
39428	90480A007	5310002725771	32	11
07524	906146		6	2
07524	906147	3010015224575	6	5
07524	906155	3010015224586	6	4
2V507	90631A411	5310015273369	12	26
39428	90640A145	5310015344600	12	24
2V507	90675A195	5310015261750	12	57
39428	90715A125	5310015045702	12	69
39428	91114A011	5310015606893	6	14
39428	91114A011	5310015606893	12	27
39428	91114A029	5310013578845	6	29
39428	91114A029	5310013578845	12	4
39428	91114A029	5310013578845	12	66
39428	91114A031	5310013578847	6	10
39428	91114A031	5310013578847	14	3
39428	91114A031	5310013578847	16	4
07070	91247A552	5305015672367	18	6
39428	91247A628	5306011939197	6	12
39428	91247A628	5306011939197	47	2
39428	91247A640	5305015918571	46	18
39428	91247A640	5305015918571	47	18
39428	91306A375	5305015751984	25	22
39428	91772A537	5305015132196	9	9
39428	91831A011	5310014634929	6	16
39428	91831A011	5310014634929	12	7
39428	91831A011	5310014634929	12	72
39428	91831A011	5310014634929	13	4
39428	91831A011	5310014634929	25	15
82796	92008302	4730010756960	33	27
07BY4	92196A242	5305015779592	13	2
07BY4	92196A242	5305015779592	25	12
8R639	92196A245	5305016148937	12	37
39428	92210A194	5305014439078	12	46
39428	92314A110	5305014552678	12	42
39428	92865A107	5305015834142	6	25
39428	92865A537	5306015333783	3	10
39428	92865A537	5306015333783	3	32
39428	92865A537	5306015333783	12	17
39428	92865A537	5306015333783	32	10

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
2V507	92865A540	5305015294402	2	30
2V507	92865A540	5305015294402	33	39
2V507	92865A540	5305015294402	37	3
2V507	92865A540	5305015294402	37	14
2V507	92865A540	5305015294402	38	1
39428	92865A542	5305014519220	12	62
39428	92865A542	5305014519220	15	4
39428	92865A542	5305014519220	26	8
39428	92865A542	5305014519220	48	1
39428	92865A623	5305015247346	9	2
39428	92865A623	5305015247346	11	28
39428	92865A623	5305015247346	12	61
39428	92865A626	5305015048942	2	28
39428	92865A626	5305015048942	6	27
39428	92865A626	5305015048942	9	5
39428	92865A626	5305015048942	18	11
39428	92865A626	5305015048942	33	42
39428	92865A626	5305015048942	34	1
39428	92865A714	5305015335700	6	20
39428	92865A938	5306015528240	19	2
39428	92865A938	5306015528240	40	1
39428	92865A938	5306015528240	46	20
39428	9381T52	4030002811683	42	10
39428	94135K44	5360015918646	18	5
80195	9413948		33	4
80195	9413948		41	1
80195	9424876		17	6
2V507	94831A031	5310015899667	7	8
39428	95065A160	5310016029922	10	11
39428	95065A160	5310016029922	18	15
39428	95065A160	5310016029922	19	6
39428	95065A191	5310016050886	20	15
39428	95065A191	5310016050886	21	1
39428	95065A191	5310016050886	35	2
39428	95065A191	5310016050886	36	2
39428	96024A410	5305015877081	6	28
39428	96024A410	5305015877081	9	3
39428	96024A410	5305015877081	11	25
39428	96024A410	5305015877081	12	58
3A054	97525A485	5320015800869	31	8

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CAGEC	PART NUMBER	STOCK NUMBER	FIG.	ITEM
39428	97525A615	5320015846190	12	40
39428	97525A615	5320015846190	31	10
39428	97525A615	5320015846190	37	11
39428	97525A615	5320015846190	49	6
39428	98026A031	5310010831540	2	5
39428	98026A031	5310010831540	6	23
39428	98026A031	5310010831540	9	1
39428	98026A031	5310010831540	11	24
39428	98026A031	5310010831540	12	60
39428	98026A031	5310010831540	15	7
39428	98026A031	5310010831540	18	10
39428	98026A031	5310010831540	22	8
39428	98026A031	5310010831540	25	26
39428	98026A031	5310010831540	31	18
39428	98026A031	5310010831540	34	6
39428	98026A031	5310010831540	43	2
39428	98233A400	5310015886075	6	22
3A054	98466A009	5310015722443	12	47
13226	9Q5806	5310015108446	36	10
13226	9Q5845	5310010519649	36	11
13226	9Q5884	5305015047427	2	10
13226	9Q5884	5305015047427	33	15
13226	9Q5884	5305015047427	46	3
13226	9Q5884	5305015047427	47	12
13226	9Q5908	5310015965439	37	7
13226	9Q5908	5310015965439	38	5
13226	9Q5909	5310014852086	37	8
13226	9Q5909	5310014852086	38	6

END OF WORK PACKAGE

CHAPTER 5

SUPPORTING INFORMATION

FIELD MAINTENANCE

REFERENCES

Scope, DA Pamphlets, Field Manuals, Forms, Miscellaneous, Technical Manuals

SCOPE

This work package lists the publications referenced in this manual.

ARMY TECHNIQUES PUBLICATIONS

ATP 4-43	Petroleum Supply Operations

DA PAMPHLETS

DA PAM 750-8	The Army Maintenance Management System (TAMMS) Users Manual

FIELD MANUALS

FM 4-25.11	First Aid

FORMS

DA Form 2028	Recommended Changes to Publications and Blank Forms
DA Form 2404	Equipment Inspection and Maintenance Worksheet
DA Form 5988-E	Equipment Maintenance and Inspection Worksheet (Automated)
SF 368	Product Quality Deficiency Report

MISCELLANEOUS

CTA 8-100	Common Table of Allowances, Army Medical Department Expendable/Durable Items
CTA 50-970	Common Table of Allowances, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items)
CTA 50-909	Common Table of Allowances, Field and Garrison Furnishings and Equipment

TECHNICAL MANUALS

TM 10-4930-370-10	Technical Manual, Operator Manual for Modular Fuel System Tank Rack Module
TM 750-244-6	Procedures for Destruction of Tank-Automotive Equipment to Prevent Enemy Use

END OF WORK PACKAGE

FIELD MAINTENANCE

MAINTENANCE ALLOCATION CHART (MAC) INTRODUCTION

INTRODUCTION

The Army Maintenance System MAC

This introduction provides a general explanation of the maintenance and repair functions.

The MAC (immediately following this introduction) designates overall authority and responsibility for the performance of maintenance tasks on the identified end item or component. The application of the maintenance tasks to the end item or component shall be consistent with the capacities and capabilities of the designated maintenance levels/classes, which are shown in the MAC in column (4). Column (4) is divided into two secondary columns. These columns indicate the maintenance levels/classes of ‘Field’ and ‘Sustainment’. Each maintenance level column is further divided into two sub-columns. These sub-columns identify the maintenance classes and are as follows:

1. Field level maintenance classes:
    a. Crew (operator) maintenance. This is the responsibility of a using organization to perform maintenance on its assigned equipment. It normally consists of inspecting, servicing, lubricating, adjusting, and replacing parts, minor assemblies, and subassemblies. Items with a “C” (“O” for joint service reporting) in the third position of the Source, Maintenance, and Recoverability (SMR) code may be replaced at the crew (operator) class. A code of “C” (“O” for joint service) in the fourth position of the SMR code indicates complete repair is authorized at the crew (operator) class.
    b. Maintainer maintenance. This is maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion by field level units. This maintenance is performed either on the system or after it is removed. An “F” in the third position of the SMR code indicates replacement of assemblies, subassemblies, or other components is authorized at this level. An “F” in the fourth position of the SMR code indicates complete repair of the identified item is allowed at the Maintainer class. Items repaired at this level are normally returned to the user after maintenance is performed.
2. Sustainment level maintenance classes:
    a. Below depot sustainment. This is maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. The item subject to maintenance has normally been forwarded to a maintenance facility away from the field level supporting units. An “H” in the third position of the SMR code indicates replacement of assemblies, subassemblies, or other components is authorized at this class. An "H" appearing in the fourth position of the SMR code indicates complete repair is possible at this class. Items are normally returned to the supply system after maintenance is performed at this class.
    b. Depot. This is maintenance accomplished on a component, accessory, assembly, subassembly, plug-in unit, or other portion either on the system or after it is removed. Assets to be repaired at this class are normally returned to an Army Depot or authorized contractor facility. The replace function for this class of maintenance is indicated by the letter "D" or "K" appearing in the third position of the SMR code. A "D" or "K" appearing in the fourth position of the SMR code indicates complete repair is possible at the depot sustainment maintenance level. Items are returned to the supply system after maintenance is performed at this class.

The tools and test equipment requirements table (immediately following the MAC) lists the tools and test equipment (both special tools and common tool sets) required for each maintenance task as referenced from the MAC.

The remarks table (immediately following the tools and test equipment requirements) contains supplemental instructions and explanatory notes for a particular maintenance task.

Maintenance Functions (tasks)

Maintenance functions are limited to and defined as follows:

1. Inspect. A function to determine the serviceability of an item by comparing its physical, mechanical, and/or electrical characteristics with established standards through examination (e.g., by sight, sound, or feel).
2. Test. To verify serviceability by measuring the mechanical, pneumatic, hydraulic, or electrical characteristics of an item and comparing those characteristics with prescribed standards, e.g., load testing of lift devices or hydrostatic testing of pressure hoses.
3. Service. Operations required periodically to keep an item in proper operating condition such as replenishing fuel, lubricants, chemical fluids, or gases.
4. Adjust. To maintain or regulate, within prescribed limits, by bringing into proper position, or by setting the operating characteristics to specified parameters.
5. Align. To adjust specified variable elements of an item to bring about optimum or desired performance.
6. Calibrate. To determine and cause corrections to be made or to be adjusted on instruments of test, measuring, and diagnostic equipment used in precision measurement. It consists of comparisons of two instruments, one of which is a certified standard of known accuracy, to detect and adjust any discrepancy in the accuracy of the instrument being compared.
7. Remove. The act of taking a component off an asset to facilitate other maintenance on a different component or on the same component (except for replace and repair.)
8. Install. The act of placing, positioning, or otherwise locating a component to make it part of a higher level end item. The install task is authorized by the LMI/MAC and the assigned maintenance level is shown as the third position code of the SMR code.
9. Replace. The act of taking off an unserviceable component and putting a serviceable component in its place. The replace task is authorized by the LMI/MAC and the assigned maintenance level is shown as the third position code of the SMR code.
10. Repair. The act of restoring an item to a completely serviceable or fully mission capable status. The repair task is authorized by the LMI/MAC and the assigned maintenance level is shown as the fourth position code of the SMR code.
11. Paint. This is a function to prepare and apply coats of paint. When used with munitions, the paint is applied so the ammunition can be identified and protected.

NOTE

The following definitions are applicable to the “repair” maintenance task:

Fault location/troubleshooting. The process of investigating and detecting the cause of equipment malfunctioning; the act of isolating a fault within a system or Unit Under Test (UUT).

Actions. Welding, grinding, riveting, straightening, facing, machining, and/or resurfacing.

12. Overhaul. This is the maintenance effort (service/action) prescribed to restore an item to a completely serviceable/operational condition as required by maintenance standards in the appropriate technical publications. Overhaul is normally the highest degree of maintenance performed by the Army. Overhaul does not normally return an item to a like new condition.
13. Rebuild. This consists of those services/actions necessary for the restoration of unserviceable equipment to a like new condition in accordance with original manufacturing standards. Rebuild is the highest degree of materiel maintenance applied to Army equipment. The rebuild operation includes the act of returning to zero those age measurements (e.g., hours/miles) considered in classifying Army equipment/components.
14. Lubricate. The act of applying a material (e.g., oil or grease) to reduce friction and allow a component to operate in a more efficient manner.

Maintenance Functions (tasks) – Continued

15. Mark. The process of restoring obliterated identification on an asset.
16. Pack. To place an item into a container for either storage or shipment after service and other maintenance operations have been completed.
17. Unpack. The act or removing an asset from a storage or shipping container in preparation to perform further maintenance (e.g., repair or install).
18. Preserve. The action required to treat systems and equipment whether installed or stored, to ensure a serviceable condition.
19. Prepare for use. Those steps required to make an asset ready for other maintenance (e.g., remove preservatives, lubricate, etc.).
20. Assemble. The step-by-step instructions to join the component pieces of an asset together to make a complete serviceable asset.
21. Disassemble. The step-by-step breakdown (taking apart) of a spare/functional group coded item to the level of its least component, that is assigned an SMR code for the level of maintenance under consideration (i.e., identified as maintenance significant).
22. Clean. Step-by-step instructions on how to remove dirt, corrosion or other contaminants from equipment. Refer to appropriate painting, lubrication, and preservation methods to restore original corrosion prevention and control methods when removed as a result of cleaning and/or when using cleaning to remove corrosion from the item.
23. Non destructive inspection. Step-by-step instructions on preparation and accomplishment inspections which do not destroy or damage the equipment.
24. Radio interference suppression. Step-by-step instructions to ensure installed equipment, either communication or other electronics, does not interfere with installed communication equipment.
25. Place in service. Step-by-step instructions required to place an item into service that are not covered in the service upon receipt work package.
26. Towing. The step-by-step instructions to connect one vehicle to another for the purpose of having one vehicle moved through the motive power of the other vehicle.
27. Jacking. The step-by-step instructions to mechanically raise or lift a vehicle to facilitate maintenance on the vehicle.
28. Parking. Step-by-step instructions to safely place a vehicle in a lot, ramp area or other designated location.
29. Mooring. Step-by-step instructions to secure a vehicle by chains, ropes or other means to protect the vehicle from environmental conditions or secure for transportation.
30. Covering. Step-by-step instructions to place a protective wrapping over a vehicle to protect it from environmental conditions or to hide (e.g., camouflage) it.
31. Hoisting. Step-by-step instructions to allow a vehicle to be raised by cables or ropes through attaching points.
32. Sling loading. Step-by-step instructions to place a sling around a vehicle to allow it to be raised.
33. External power. Step-by-step instructions on how to apply electrical power from any authorized power source (e.g., external generator or facility power).
34. Preparation for storage or shipment. Step-by-step instructions for preparing the equipment for placement into administrative storage or for special transportation requirements.
35. Arm. Detailed instructions on activating munitions prior to use.
36. Load. This may be one of two tasks:
    a. For transportation, the act of placing assets onto a transportation medium (e.g., pallet, truck, container).
    b. For weapons/weapons systems, the act of placing munitions into the weapon/weapons system.

Maintenance Functions (tasks) – Continued

37. Unload. This may be one of two tasks:
    a. For transportation, the act of removing assets from a transportation medium (e.g., pallet, truck, container).
    b. For weapons/weapons systems, the act of removing munitions from the weapon/weapons system.
38. Software maintenance. Step-by-step instructions for software maintenance (e.g., installing, un-installing, etc.).

Explanation of Columns in the MAC

Column (1) Group Number. Column (1) lists Functional Group Code (FGC) numbers, the purpose of which is to identify maintenance significant components, assemblies, subassemblies, and modules with the Next Higher Assembly (NHA).

Column (2) Component/Assembly. Column (2) contains the item names of components, assemblies, subassemblies, and modules for which maintenance is authorized.

Column (3) Maintenance Function. Column (3) lists the functions to be performed on the item listed in column (2). (For a detailed explanation of these functions, refer to maintenance functions (tasks) outlined previously.)

Column (4) Maintenance Level. Column (4) specifies each level/class of maintenance authorized to perform each function listed in column (3), by indicating work time required in the appropriate sub-column. This work time figure represents the active time required to perform that maintenance task at the indicated level/class of maintenance. If the number or complexity of the tasks within the listed maintenance task varies at different maintenance classes, appropriate work time figures are to be shown for each class.

The work time figure represents the average time required to perform the prescribed task (assembly, subassembly, component, module, end item, or system) on the item under typical operating conditions for that maintenance level/class. This time includes preparation time (including any necessary disassembly/assembly time), troubleshooting/fault location time, and quality assurance time in addition to the time required to perform the specific tasks identified for the maintenance tasks authorized in the MAC. The symbol designations for the various maintenance levels/classes and classes are as follows:

Field:

C Crew maintenance

F Maintainer maintenance

Sustainment:

L Specialized Repair Activity (SRA)

H Below depot maintenance

D Depot maintenance

NOTE

The “L” maintenance class is not included in column (4) of the MAC. Functions to this class of maintenance are identified by work time figure in the “H” column of column (4), and an associated reference code is used in the REMARKS column (6). This code is keyed to the remarks and the SRA complete repair application is explained there.

Column (5) Tools and Equipment Reference Code. Column (5) specifies, by a number code, those common tool sets (not individual tools), common Test, Measurement and Diagnostic Equipment (TMDE), and special tools, special TMDE and special support equipment required to perform the designated function. Codes are keyed to the entries in the tools and test equipment table.

Column (6) Remarks Code. When applicable, this Column (6) contains a letter code, in alphabetical order, which is keyed to the remarks table entries.

Explanation of Columns in the Tools and Test Equipment Requirements

Column (1) Tool or Test Equipment Reference Code. The tool or test equipment reference code correlates with a code used in column (5) of the MAC.

Column (2) Maintenance Level. The lowest class of maintenance authorized to use the tool or test equipment.

Column (3) Nomenclature. Name or identification of the tool or test equipment.

Column (4) National Stock Number (NSN). The NSN of the tool or test equipment.

Column (5) Tool Number. The manufacturer's part number.

Explanation of Columns in the Remarks

Column (1) Remarks Code. The code recorded in column (6) of the MAC.

Column (2) Remarks. This column lists information pertinent to the maintenance task being performed as indicated in the MAC.

END OF WORK PACKAGE

FIELD MAINTENANCE

MAINTENANCE ALLOCATION CHART (MAC)

Table 1. Maintenance Allocation Chart (MAC) for MFS Tank Rack Module.

(1)	(2)	(3)	(4)				(5)	(6)
			FIELD		SUSTAINMENT			
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	CREW	MAINTAINER	BELOW DEPOT	DEPOT	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
			C	F	H	D		
00	**MFS TRM S-ARC**							B, C
01	**DISCHARGE PIPING ASSEMBLY**	Inspect Repair	0.2	 1.3			 6,7	A B
0101	Discharge Piping Assembly Butterfly Valve	Inspect Repair	0.2	 1.5			 7,8	A B
010101	Discharge Piping Assembly Butterfly Valve Lever	Inspect Replace	0.2	 0.1			 7	A
0102	Port C Vacuum Breaker	Inspect Replace	0.2	 0.1			 7	A
0103	Left Hand or Right Hand Discharge Arm	Inspect Replace Repair Clean	0.2	 2.0 2.0 0.2			 6,7 3,6,7	A B
010301	Quick Disconnect Coupling	Inspect	0.2					A
010302	1 in (2.54 cm) and 2 in. (5.08 cm) Discharge Fuel Hose	Inspect	0.2					A
02	**NON-VALVED UNISEX COUPLING ASSEMBLY**	Inspect Replace Repair Clean	0.2	 0.2 0.5 0.2			 6,7 3,7	A B
03	**FUEL PUMP ASSEMBLY**	Inspect Replace Repair Preserve	0.2	0.1 5.2 9.3 1.0			 7,8 6,7,8 6,7	A
04	**FUEL PUMP STRAINER**	Inspect Clean Replace	0.1 0.1	0.1 0.1 0.4			 7	

Table 1. Maintenance Allocation Chart (MAC) for Modular Fuel System Tank Rack Module - Continued.

(1)	(2)	(3)	(4)				(5)	(6)
			FIELD		SUSTAINMENT			
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	CREW	MAINTAINER	BELOW DEPOT	DEPOT	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
			C	F	H	D		
05	**MOTOR ASSEMBLY**	Inspect	0.2					A
		Replace		3.6			7,8,11	
		Adjust		1.7			7,11	
		Repair		0.8			7	
06	**FLOW METER**	Inspect	0.2					A
		Replace		4.0			6,7	
		Repair		0.2			7	
		Preserve		1.0			6,7	
0601	Hoses	Inspect	0.2					
		Replace		1.4			7	
07	**AIR ELIMINATOR**	Inspect	0.2					A
		Replace		0.6			6,7	
0701	Hoses	Inspect	0.2					
		Replace		1.4			7	
08	**FILTER/ SEPARATOR ASSEMBLY**	Inspect	0.3					
		Replace		5.1			6,7	
		Repair		3.4			6,7,9	
0801	Hoses	Inspect	0.2					
		Replace		1.4			7	
09	**EMI CONTROL BOX ASSEMBLY**	Inspect	0.2					
		Replace		2.0			7	
		Repair		7.8			6,7	
0901	EMI Control Box Components	Inspect	0.2					
		Replace		5.3			7	
0902	EMI Control Box Wiring	Inspect	0.2					
		Replace		4.4			7	
0903	Capacitor	Inspect		0.1				
		Replace		0.3			7	
10	**ISO RACK PLACARDS**	Inspect	0.2					A
		Replace		0.1			7	
11	**GROUND ROD AND TANK GROUND STRAP**							
1101	Ground Rod	Inspect	0.2					A
		Replace		0.3			7	

Table 1. Maintenance Allocation Chart (MAC) for Modular Fuel System Tank Rack Module - Continued.

(1)	(2)	(3)	(4)				(5)	(6)
			FIELD		SUSTAINMENT			
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	CREW	MAINTAINER	BELOW DEPOT	DEPOT	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
			C	F	H	D		
1102	Tank Ground Strap	Inspect	0.2					
		Replace		0.1			7	
12	**FIRE EXTINGUISHER AND DRIP PAN BRACKETS**							
1201	Fire Extinguishers and Brackets	Inspect	0.2					A
		Replace		0.2			7	
1202	Drip Pan Bracket	Inspect	0.2					A
		Replace		0.4			7	
13	**STATIC GROUND REELS**	Inspect	0.2					A
		Inspect		0.2			5,7	
		Replace		0.1			7	
14	**ROLLERS**	Inspect	0.2					A
		Replace		0.2				
15	**ISO RACK HANDLES**	Inspect	0.2					A
		Replace		0.3			7	
16	**REAR HEAD TANK GAUGE**	Inspect	0.2					
		Replace		0.1			7	
1601	Rear Head Tank Gauge Pointer	Inspect	0.2					A
		Adjust		0.1			7,8	
		Replace		0.3			7	
		Repair		0.3			7	B
17	**VENT VALVE ASSEMBLY**	Inspect	0.2					A
		Repair		4.0			7	B
18	**TANK COVER PLATE**	Inspect	0.2					A
		Replace		0.2			7	
19	**STOWAGE TUBE ASSEMBLY**	Inspect	0.2					A
		Replace		0.3			7	
		Repair		0.3			3,7	B
20	**FRONT AND REAR DRAIN LINES**	Inspect	0.2					A
		Replace		1.0			7	
21	**LIQUID LEVEL SWITCH**	Inspect	0.2					A
		Replace		1.0			7	

Table 1. Maintenance Allocation Chart (MAC) for Modular Fuel System Tank Rack Module - Continued.

(1)	(2)	(3)	(4)				(5)	(6)
			FIELD		SUSTAINMENT			
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	CREW	MAINTAINER	BELOW DEPOT	DEPOT	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
			C	F	H	D		
22	**TOOL BOX**							
2201	Tool Box	Inspect	0.2					A
		Replace		1.5			7	
		Repair		1.5			3,4,6,7	B
2202	Flange Adapter Assembly	Inspect	0.2					
		Repair		2.0			7	
2203	Nozzle Assembly with Valved Unisex Coupling	Inspect	0.2					A
		Repair		0.5			3,4,6,7	B
2204	NATO Adapter Assemblies	Inspect	0.1					A
		Repair		0.5			4,7	B
2205	Adapter Assembly	Inspect	0.1					
		Repair	0.3					
23	**CABLE TRAY ASSEMBLY**							
2301	Cable Tray	Inspect	0.3					
		Replace		0.4			7	
		Repair		2.4			3,4,6,7	
2302	Remote Control Switch Box Assembly	Inspect	0.3					
		Repair		0.8			7	
24	**BOTTOM LOAD VALVE PIPING ASSEMBLY**	Inspect	0.2					A
		Repair		1.5			7	B
2401	Port B Vacuum Breaker	Inspect	0.2					A
		Replace		0.2			6,7	
2402	Precheck Valve	Inspect	0.2					A
		Replace		1.0			6,7	
2403	Quick Disconnect Coupling Half	Inspect	0.2					A
		Replace		0.5			7,8	
		Clean		0.2				
2404	Inlet Piping Assembly	Inspect	0.2					A
		Repair		4.5			7,8	B
240401	Inlet Piping Assembly Butterfly Valve Lever	Inspect	0.2					A
		Replace		0.1			7	

Table 1. Maintenance Allocation Chart (MAC) for Modular Fuel System Tank Rack Module - Continued.

(1)	(2)	(3)	(4)				(5)	(6)
			FIELD		SUSTAINMENT			
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	CREW C	MAINTAINER F	BELOW DEPOT H	DEPOT D	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
25	**VAPOR RECOVERY PIPING ASSEMBLY**	Inspect Repair	0.2	 0.5			 7	A B
26	**V2 VALVE**	Inspect Replace	0.2	 3.5			 1,7,8	A
27	**V1 VALVE**	Inspect Replace	0.2	 2.3			 1,7,8	A
2701	V1 Valve Fusible Link	Inspect Replace	0.2	 0.8			 7	
28	**CONTROL LEVER ASSEMBLY (V1)**	Inspect Repair	0.2	 3.5			 4,7	A B
29	**SIDE MECHANICAL OPERATOR CONTROL LEVER (V2)**	Inspect Replace	0.2	 1.3			 7	A
30	**CABLE GUIDES**							
3001	V1 Valve Cable Guide	Inspect Replace	0.2	 0.5			 4,6,7	A
3002	V2 Valve Cable Guide	Inspect Replace	0.2	 0.6			 4,6,7	A
3003	Emergency Stop Cable Guides							
300301	Left Hand Emergency Stop Cable Guide	Inspect Replace	0.2	 1.5			 4,6,7	A
300302	Right Hand Emergency Stop Cable Guide	Inspect Replace	0.2	 1.5			 4,6,7	A
300303	V1 and V2 Emergency Stop Cable Guide	Inspect Replace	0.2	 1.5			 4,6,7	A
31	**COMPRESSION SPRINGS**	Inspect Replace	0.2	 2.5			 2,7	A

Table 1. Maintenance Allocation Chart (MAC) for Modular Fuel System Tank Rack Module - Continued.

(1)	(2)	(3)	(4)				(5)	(6)
			FIELD		SUSTAINMENT			
GROUP NUMBER	COMPONENT/ ASSEMBLY	MAINTENANCE FUNCTION	CREW	MAINTAINER	BELOW DEPOT	DEPOT	TOOLS AND EQUIPMENT REF CODE	REMARKS CODE
			C	F	H	D		
32	**ISOLATION MOUNTS**	Inspect		0.2			10	
33	**MANHOLE COVER/ TRANSPORTER COVER**							
3301	Manhole Cover	Inspect	0.2					A
		Replace		0.5			6,7	
		Repair		0.5			7	
34	**HOSE TROUGH ASSEMBLY**	Inspect	0.2					A
		Replace		2.0			7	
		Repair		2.0			6,7	B
35	**MISC ITEMS**							
3501	Discharge Hose	Inspect	0.2					A
		Repair		0.3			3,7	B
		Clean		0.2				
3502	Suction Hose	Inspect	0.2					A
		Repair		0.2			7	B
		Clean		0.2				
3503	Camlock Adapter	Inspect	0.2					A
		Repair		1.5			4,7,8	B
		Clean		0.2				
350301	Camlock Adapter Bracket	Inspect	0.2					
		Replace		0.2			7	
3504	Tee Assembly	Inspect	0.2					A
		Repair		2.0			4,7,8	B
		Clean		0.2				
350401	Tee Assembly Bracket	Inspect	0.2					A
		Replace		0.1			7	
36	**ISO RACK LADDERS**							
3601	Ladder and Brackets	Inspect	0.2					A
		Replace		0.5			7	
3602	ISO Rack Ladder	Inspect	0.5					A
		Replace		0.1			7	
37	**DATA PLATES**	Inspect	0.2					A
		Replace		0.2			6,7	

Table 2. Tools and Test Equipment for MFS Tank Rack Module.

(1) TOOLS OR TEST EQUIPMENT	(2) MAINTENANCE LEVEL	(3) NOMENCLATURE	(4) NATIONAL STOCK NUMBER	(5) TOOL NUMBER
1	F	3/4 in. crowfoot attachment, socket wrench, 3/8 in. drive	5120-01-335-1155	FC024A
2	F	15/16 in. crowfoot attachment, socket wrench, 3/8 in. drive	5120-01-335-1090	FC030A
3	F	Compressing tool, splicing sleeve	5120-00-469-7607	64CGMP
4	F	Compression tool, multidiameter	5120-01-644-4341	51-MJ
5	F	Multimeter		
6	F	Standard automotive tool set (SATS)	4910-01-490-6453	SC 4910-95-A81
7	F	Tool kit, general mechanic's	5180-01-483-0249	SC 5180-95-B47
8	F	Wrench, torque, 0-75 lb-ft		
9	F	Wrench, torque, 250 lb-ft		
10	F	Wrench, torque, 600 lb-ft		
11	F	Wrench, torque, dial, 1/4 in. drive, 30 in-lb		

Table 3. Remarks for MFS Tank Rack Module.

Remark Code	Remark
A	Crew/operator inspection limited to Preventive Maintenance Checks and Services (PMCS).
B	Repair to consist of replacement of parts only at Field Level Maintenance.
C	Complete repair at Specialized Repair Activity (SRA).

END OF WORK PACKAGE

FIELD MAINTENANCE

EXPENDABLE AND DURABLE ITEMS LIST
Scope, Explanation of Columns in Expendable/Durable Items List

SCOPE

This work package lists expendable and durable Items that you will need to maintain the MFS TRM. This list is for information only and is not authority to requisition the listed Items. These Items are authorized to you by CTA 50-970, Expendable/Durable Items (Except Medical, Class V Repair Parts, and Heraldic Items), CTA 50-909, Field and Garrison Furnishings and Equipment or CTA 8-100, Army Medical Department Expendable/Durable Items.

EXPLANATION OF COLUMNS IN EXPENDABLE/DURABLE ITEMS LIST

1. **Column (1) Item No.** This number is assigned to the entry in the list and is referenced in the narrative instructions to identify the Item (e.g., Grease, automotive and artillery, GAA (WP 0181, Item 8)).
2. **Column (2) Level.** This column identifies the lowest level of maintenance that requires the listed Item (C = Crew, F = Maintainer).
3. **Column (3) National Stock Number (NSN).** This is the NSN assigned to the Item which you can use to requisition it.
4. **Column (4) Item Name, Description, Part Number/(CAGEC).** This column provides the other information you need to identify the Item. The last line below the description is the part number and the Commercial and Government Entity Code (CAGEC) (in parentheses).
5. **Column (5) U/I.** Unit of Issue (U/I) code shows the physical measurement or count of an Item, such as gallon, dozen, gross, etc.

Table 1. Expendable and Durable Items List.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER (CAGEC)	(5) U/I
1	C	8415-00-634-5023	Apron, utility 021-758 (15481)	EA
2	C	6850-01-474-2302	Cleaning compound, solvent MIL-PRF-680 (81349)	GAL
3	F	5330-00-246-0330	Cloth, abrasive aluminum oxide, 320 grit, 9 x 11 in. ANSI B74.18 (80204)	PG
4	C	7920-00-044-9281	Cloth, cleaning 3479 (0MBA9)	BX
5	C	8030-00-118-0666	Corrosion preventive compound LPS3 (81349) 11 oz can	CN
6	C	8415-00-266-8675	Gloves, rubber, industrial MIL-DTL-32066 (81349)	PR

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER (CAGEC)	(5) U/I
7	C	4240-00-203-3804	Goggles, industrial ANSI Z87.1 (80204)	PR
8	C	9150-01-197-7689	Grease, automotive and artillery, GAA MIL-PRF-10924-D (81349)	CN
9	F	9150-01-643-7278	Grease, electrically conductive 6703646 (80195)	QT
10	F	9150-01-594-9387	Grease, general purpose XHP222 (1ZAY6) 14.1 ounce tube	EA
11	C	9150-01-426-3844	Grease, general purpose MG-75 (60111) 0.75 ounce tube	TU
12	C	9150-00-189-6727	Oil, lubricating, OE/HDO-10 MIL-PRF 2104-G (81349) 1 quart can	QT
13	C	9150-00-402-4478	Oil, lubricating, OEA-30 Arctic MIL-L-46167 (891349) 1 quart can	QT
14	C	4940-01-504-5273	Pan, drip, 6.5 gal. capacity PB6C-10 (4N5U7) 10 per package	PG
15	F	9150-00-250-0926	Petrolatum, technical 14P1 (82146) 1.75 pound can	CN
16	C	8040-01-383-7059	Primer, adhesive LOCTITE 7649 (05972) 1.75 oz bottle	BT
17	F	4240-01-269-4169	Respirator, air filtering 313000 (39SU9)	EA
18	C	8030-01-431-3582	Sealing compound thread sealant with teflon 567 (05972) 250 cc tube	TU
19	F	8030-01-137-6964	Sealing Compound 51531 (05972)	BX
20	F	8030-01-479-0487	Sealing compound 56541 (05972) 250 ml tube	TU

Table 1. Expendable and Durable Items List - Continued.

(1) ITEM NO.	(2) LEVEL	(3) NATIONAL STOCK NUMBER (NSN)	(4) ITEM NAME, DESCRIPTION, PART NUMBER (CAGEC)	(5) U/I
21	F	8030-01-258-9600	Sealing compound 205596 (10237) 4.7 oz tube	TU
22	C	5975-01-560-1900	Strap, tiedown electrical components L140013-01 (19397)	PG
23	F	5975-01-132-6170	Wire marker books PCMB-2 (06383)	EA

END OF WORK PACKAGE

FIELD MAINTENANCE

TOOL IDENTIFICATION LIST (TIL)

INTRODUCTION

Scope

This work package lists common tools and supplements and special tools/fixtures needed to maintain the MFS TRM.

Explanation of Columns in the Tool Identification List

Column (1) Item No. This number is assigned to the entry in the list and is referenced in the initial setup to identify the item (e.g., Extractor (WP 0090, item 32)).

Column (2) Item Name. This column lists the item by noun nomenclature and other descriptive features (e.g., Gauge, belt tension).

Column (3) National Stock Number (NSN). This is the National Stock Number (NSN) assigned to the item; use it to requisition the item.

Column (4) Part Number/(CAGEC). Indicates the primary number used by the manufacturer (individual, company, firm, corporation, or Government activity) which controls the design and characteristics of the item by means of its engineering drawings, specifications, standards, and inspection requirements to identify an item or range of items. The manufacturer's Commercial and Government Entity Code (CAGEC) is also included.

Column (5) Reference. This column identifies the authorizing supply catalog, components list, or RPSTL for items listed in this work package.

Table 1. TRM Tool Identification List.

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER (NSN)	(4) PART NUMBER/ (CAGEC)	(5) REFERENCE
1	Compressing tool, splicing sleeve	5120-00-469-7607	64CGMP (76691)	RPSTL FIGURE 50
2	Compression tool, multidiameter (3/32 in.to 7/32 in.)	5120-01-644-4341	51-MJ (76691)	RPSTL FIGURE 50
3	Crowfoot attachment, socket wrench 3/4 in., 3/8 in. drive	5120-01-335-1155	FC024 (55719)	RPSTL FIGURE 50
4	Crowfoot attachment, socket wrench 15/16 in., 3/8 in. drive	5120-01-335-1090	FC030A (55719)	RPSTL FIGURE 50
5	Cutter, bolt lightweight, 24 in.			SATS KTC S0182
6	Drill, battery, rechargable			SATS KTC S0190
7	Drill set, twist			SATS KTC S0194
8	Hammer, hand, soft face			SATS KTC S0221
9	Lubricating gun, hand			SATS KTC S0248

Table 1. TRM Tool Identification List.

(1) ITEM NO.	(2) ITEM NAME	(3) NATIONAL STOCK NUMBER (NSN)	(4) PART NUMBER/ (CAGEC)	(5) REFERENCE
10	Multimeter			GMTK 08292: 77-4BN
11	Tool kit, blind			SATS KTC S0700
12	Tool kit, general mechanic's	5180-01-548-7634	PD484 (19200)	
13	Vise, machinist's, 4 in.			SATS KTC S0725
14	Wire brush			SATS KTC S0148
15	Wrench, adjustable, automotive, 15 in.			SATS KTC S0978
16	Wrench, adjustable, automotive, 18 in.			SATS KTC S0980
17	Wrench, pipe, 10 in.			SATS KTC S0984
18	Wrench, pipe, 18 in.			SATS KTC S0983
19	Wrench, torque, 0-75 lb-ft			SATS KTC S0989
20	Wrench, torque, 250 lb-ft			SATS KTC S0991
21	Wrench, torque, 600 lb-ft			SATS KTC S0988
22	Wrench, torque, dial, 1/4 in. drive, 30 in-lb			SATS KTC S0986

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ITEM	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON (Exact wording of recommended change must be given)
	0007-3					*Figure 2, Item 9 should show a lockwasher. Currently shows a flat washer.*
	0018-2					*Cleaning and inspection, Step 6, reference to governor support pin (14) is wrong reference. Reference should be change to (12).*

SAMPLE

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE
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SAMPLE

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TM 10-4930-370-23&P	16 September 2015	Field Maintenance Manual Including Repair Parts and Special Tools List for Modular Fuel System Tank Rack Module with Stand-Alone Retail Capability

ITEM NO	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON

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TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

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RECOMMENDED CHANGES TO PUBLICATIONS AND BLANK FORMS For use of this form, see AR 25-30; the proponent agency is OAASA	Use Part II *(reverse)* for Repair Parts and Special Tool Lists (RPSTL) and Supply Catalogs/Supply Manuals (SC/SM).	**DATE**
TO *(Forward to proponent of publication or form) (Include ZIP Code)* U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-IMP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000	**FROM** *(Activity and location) (Include ZIP Code)*	

PART I – ALL PUBLICATIONS (EXCEPT RPSTL AND SC/SM) AND BLANK FORMS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 10-4930-370-23&P	16 September 2015	Field Maintenance Manual Including Repair Parts and Special Tools List for Modular Fuel System Tank Rack Module with Stand-Alone Retail Capability

ITEM NO	PAGE	PARA-GRAPH	LINE	FIGURE NO.	TABLE	RECOMMENDED CHANGES AND REASON

TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

TO *(Forward direct to addressee listed in publication)*	**FROM** *(Activity and location) (Include ZIP Code)*	**DATE**
U.S. Army TACOM Life Cycle Management Command ATTN: AMSTA-LCL-IMP/TECH PUBS 6501 E. 11 Mile Road, Warren, MI 48397-5000		

PART II – REPAIR PARTS AND SPECIAL TOOL LISTS AND SUPPLY CATALOGS/SUPPLY MANUALS

PUBLICATION/FORM NUMBER	DATE	TITLE
TM 10-4930-370-23&P	16 September 2015	Field Maintenance Manual Including Repair Parts and Special Tools List for Modular Fuel System Tank Rack Module with Stand-Alone Retail Capability

PAGE NO.	COLM NO.	LINE NO.	NATIONAL STOCK NUMBER	REFERENCE NO.	FIGURE NO.	ITEM NO.	TOTAL NO. OF MAJOR ITEMS SUPPORTED	RECOMMENDED ACTION

PART III – REMARKS *(Any general remarks, or recommendations, or suggestions for improvement of publications and blank forms. Additional blank sheets may be used if more space is needed.)*

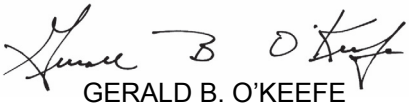
TYPED NAME, GRADE OR TITLE	TELEPHONE EXCHANGE/AUTOVON, PLUS EXTENSION	SIGNATURE

APD V4.00

By Order of the Secretary of the Army:

MARK A. MILLEY
General, United States Army
Chief of Staff

Official:



GERALD B. O'KEEFE
Administrative Assistant to the
Secretary of the Army

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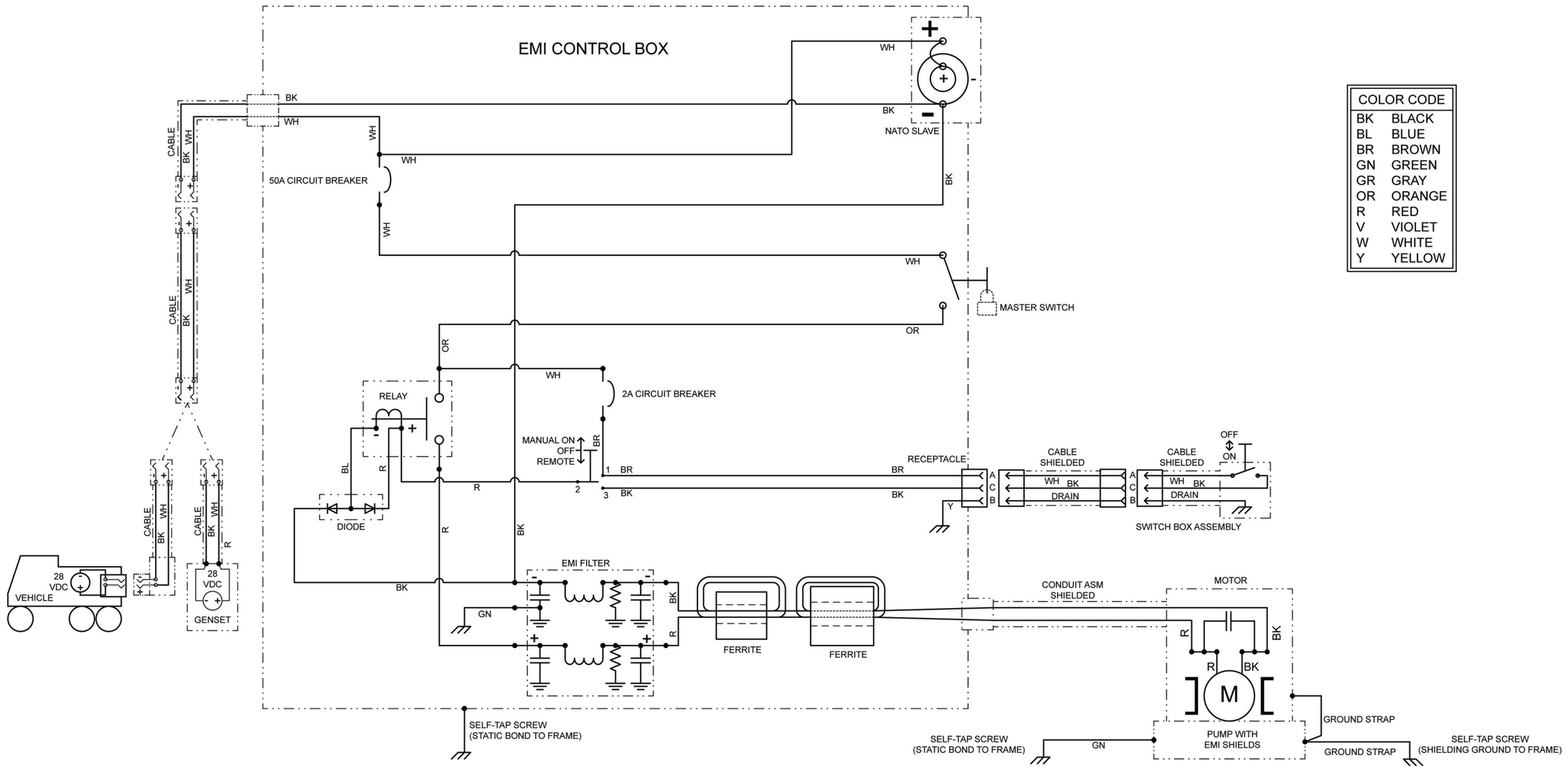

COLOR CODE	
BK	BLACK
BL	BLUE
BR	BROWN
GN	GREEN
GR	GRAY
OR	ORANGE
R	RED
V	VIOLET
W	WHITE
Y	YELLOW

FO-1. Wiring Diagram (Sheet 1 of 1).

THE METRIC SYSTEM AND EQUIVALENTS

Linear Measure

1 Centimeter = 10 Millimeters = 0.01 Meters = 0.3937 Inches
1 Meter = 100 Centimeters = 1000 Millimeters = 39.37 Inches
1 Kilometer = 1000 Meters = 0.621 Miles

Weights

1 Gram = 0.001 Kilograms = 1000 Milligrams = 0.035 Ounces
1 Kilogram = 1000 Grams = 2.2 Pounds
1 Metric Ton = 1000 Kilograms = 1 Megagram = 1.1 Short Tons

Liquid Measure

1 Milliliter = 0.001 Liters = 0.0338 Fluid Ounces
1 Liter = 1000 Milliliters = 33.82 Fluid Ounces

Square Measure

1 Sq Centimeter = 100 Sq Millimeters = 0.155 Sq Inches
1 Sq Meter = 10,000 Sq Centimeters = 10.76 Sq Feet
1 Sq Kilometer = 1,000,000 Sq Meters = 0.0386 Sq Miles

Cubic Measure

1 Cu Centimeter = 1,000 Cu Millimeters = 0.06 Cu Inches
1 Cu Meter = 1,000,000 Cu Centimeters = 35.31 Cu Feet

Temperature

5/9 (°F - 32) = °C
212° Fahrenheit is equivalent to 100° Celsius
90° Fahrenheit is equivalent to 32.2° Celsius
32° Fahrenheit is equivalent to 0° Celsius
9/5 C° +32 = F°

APPROXIMATE CONVERSION FACTORS

To Change	To	Multiply By
Inches	Centimeters	2.540
Feet	Meters	0.305
Yards	Meters	0.914
Miles	Kilometers	1.609
Sq Inches	Sq Centimeters	6.451
Sq Feet	Sq Meters	0.093
Sq Yards	Sq Meters	0.836
Sq Miles	Sq Kilometers	2.590
Acres	Sq Hectometers	0.405
Cubic Feet	Cubic Meters	0.028
Cubic Yards	Cubic Meters	0.765
Fluid Ounces	Milliliters	29.573
Pints	Liters	0.473
Quarts	Liters	0.946
Gallons	Liters	3.785
Ounces	Grams	28.349
Pounds	Kilograms	0.454
Short Tons	Metric Tons	0.907
Pound-Feet	Newton-Meters	1.356
Pounds per Sq Inch	Kilopascals	6.895
Miles per Gallon	Kilometers per Liter	0.425
Miles per Hour	Kilometers per Hour	1.609

To Change	To	Multiply By
Centimeters	Inches	0.394
Meters	Feet	3.280
Meters	Yards	1.094
Kilometers	Miles	0.621
Sq Centimeters	Sq Inches	0.155
Sq Meters	Sq Feet	10.764
Sq Meters	Sq Yards	1.196
Sq Kilometers	Sq Miles	0.386
Sq Hectometers	Acres	2.471
Cubic Meters	Cubic Feet	35.315
Cubic Meters	Cubic Yards	1.308
Milliliters	Fluid Ounces	0.034
Liters	Pints	2.113
Liters	Quarts	1.057
Liters	Gallons	0.264
Grams	Ounces	0.035
Kilograms	Pounds	2.205
Metric Tons	Short Tons	1.102
Newton-Meters	Pound-Feet	0.738
Kilopascals	Pounds per Sq Inch	0.145
Kilometers per Liter	Miles per Gallon	2.354
Kilometers per Hour	Miles per Hour	0.621

PIN: 088033-000